### APPENDIX D

Physical & Geotechnical Laboratory Testing Results, performed by Patriot Engineering and Environmental, Inc., September 2018



### Moistures

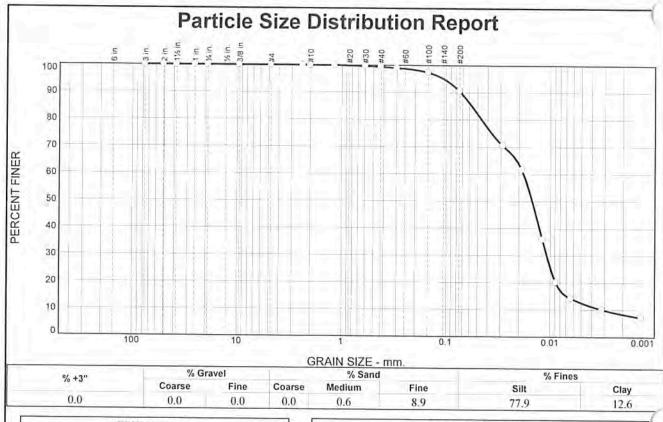
ASTM D2216 X

Original
Amended

Project:IPL Petersburg CCR MaterialProject Number:18-1452-03Client:Haley & AldrichDate:9/14/18

Sample #	3725	3726	3727	3728	3729	
Location	Scrubber &	Gypsum	Bottom	Conditioned	WWT	
Location	Flyash		Ash	Flyash	Headworks	
Wet Soil & Tare	298.22	311.45	367.59	260.66	362.79	
Dry Soil & Tare	280.61	286.14	309.6	258.26	302.96	
Water Lost	17.61	25.31	57.95	2.4	59.83	
Tare	209.45	209.42	209.33	177.73	176.09	
Dry Soil Weight	71.16	76.72	100.3	80.53	126.9	
Moisture Content	24.75	32.99	57.77	2.98	47.16	

Penetrometer			
Can Number			
Location		6	
Wet Soil & Tare		(2)	
Dry Soil & Tare		32-38	
Water Lost			
Tare	7		
Dry Soil Weight			
Moisture Content			



TEST RESULTS				
Opening	Percent	Spec.*	Pass?	
Size	Finer	(Percent)	(X=Fail)	
3.0"	100.0			
2.0	100.0			
1.5	100.0			
1.0	100.0			
.75	100.0			
.375	100.0			
#4	100.0			
#8	100.0			
#10	100.0			
#16	99.9	10.		
#30	99.6			
#40	99.4			
#50	99.0			
#100	97.3			
#200	90.5			
0.0286 mm.	70.5			
0.0188 mm	61.6			
0.0119 mm.	35.9			
0.0088 mm	20.1			
0.0063 mm	14.2			
0.0032 mm	10.1			
0.0013 mm	7.2			
		T E		
	ification provide			

Silt	Material Description
PL= NP	erberg Limits (ASTM D 4318) LL= NV PI= NP
USCS (D 2487)=	Classification ML AASHTO (M 145)= A-4(0)
D <sub>90</sub> = 0.0729 D <sub>50</sub> = 0.0149 D <sub>10</sub> = 0.0031	$\begin{array}{ccc} \textbf{Coefficients} \\ \textbf{D_{85}} = & 0.0569 & \textbf{D_{60}} = & 0.0181 \\ \textbf{D_{30}} = & 0.0108 & \textbf{D_{15}} = & 0.0069 \\ \textbf{C_{u}} = & 5.84 & \textbf{C_{c}} = & 2.09 \\ \end{array}$
	Remarks
Date Received:	Date Tested: 9/20/18
Tested By:	
Checked By:	
Title	Engineer

Location: Scrubber Sludge and Flyash Sample Number: 3725

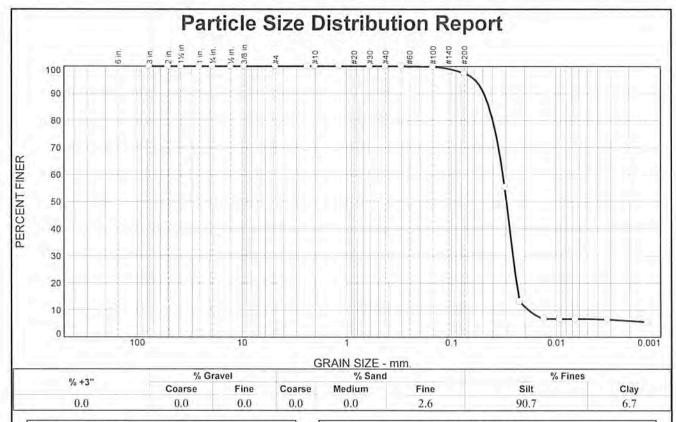
Client: Haley and Aldrich

Project: IPL Petersburg CCR Material

Project No: 18-1452-03C

Figure

Date Sampled:



Opening	Percent	Spec.*	Pass?
Size	Finer	(Percent)	(X=Fail)
3.0"	100.0		-
2.0	0.001		
1.5	100.0		
1.0	100.0		
.75	100.0		
.50	100.0		
375	100.0		
#4	100.0		
#8	100.0		
#10	100.0		
#16	0.001		
#30	100.0		
#40	100.0		
#50	100.0		
#100	99.8		
#200	97.4		
0.0309 mm	55.3		
0.0222 mm.	13.1		
0.0130 mm.	6.8		
0,0092 mm	6.7		
0.0065 mm	6.7		
0.0032 mm	6.5		
0,0013 mm	5.6		

Silt	Material Description
PL= NP	erberg Limits (ASTM D 4318) LL= NV PI= NP
USCS (D 2487)=	Classification ML AASHTO (M 145)= A-4(0
D <sub>90</sub> = 0.0487 D <sub>50</sub> = 0.0297 D <sub>10</sub> = 0.0184	$\begin{array}{c cccc} \textbf{Coefficients} \\ \textbf{D85=} & 0.0435 \\ \textbf{D30=} & 0.0257 \\ \textbf{C_{u}} = 1.75 \\ \hline \\ \textbf{Remarks} \\ \end{array}  \begin{array}{c ccccc} \textbf{D60=} & 0.0321 \\ \textbf{D15=} & 0.0226 \\ \textbf{C_{c}} = 1.12 \\ \hline \end{array}$
Date Received: Tested By:	Date Tested: 9/20/18
Checked By:	
	Engineer

\* (no specification provided)

Location: Gypsum Sample Number: 3726

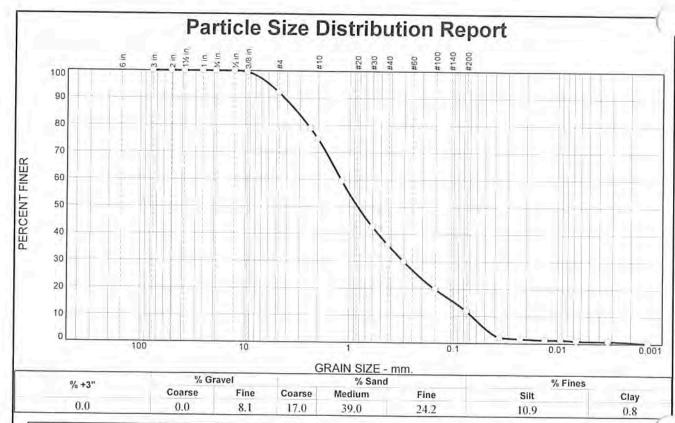
Date Sampled:

PATRIOT ENGINEERING and Environmental, Inc.

Client: Haley and Aldrich

Project: IPL Petersburg CCR Material

Project No: 18-1452-03C



TEST RESULTS				
Opening	Percent	Spec.*	Pass?	
Size	Finer	(Percent)	(X=Fail	
3.0"	100.0			
2.0	100.0			
1.5	100.0			
1.0	100.0			
.75	100.0			
.50	100.0			
375	99.5			
#4	91.9	11 13		
#8	78.8	9		
#10	74.9	9		
#16	59.4			
#30	42.6			
#40	35.9			
#50	29.8			
#100	19.7			
#200	11.7			
0.0358 mm	2.0			
0.0227 mm.	1.6			
0.0131 mm.	1.3	Ti I		
0.0093 mm	1.3			
0.0066 mm	0.9			
0.0033 mm.	0.8			
0.0014 mm	0.1			

	Material Descr	iption
Well-graded sand	with silt	
PL= NP	erberg Limits (AS	TM D 4318) PI= NP
USCS (D 2487)=	Classification	on ΓΟ (M 145)= A-1-b
D <sub>90</sub> = 4.2142 D <sub>50</sub> = 0.8315 D <sub>10</sub> = 0.0667	Coefficient D <sub>85</sub> = 3.1911 D <sub>30</sub> = 0.3032 C <sub>u</sub> = 18.03	D <sub>60</sub> = 1.2028 D <sub>15</sub> = 0.0977 C <sub>c</sub> = 1.15
	Remarks	
Date Received:	Dat	e Tested: 9/20/18
Tested By: 1	N. Durkee	
Checked By:	I. Vieck	
	Engineer	

(no specification provided)

Location: Bottom Ash Sample Number: 3727

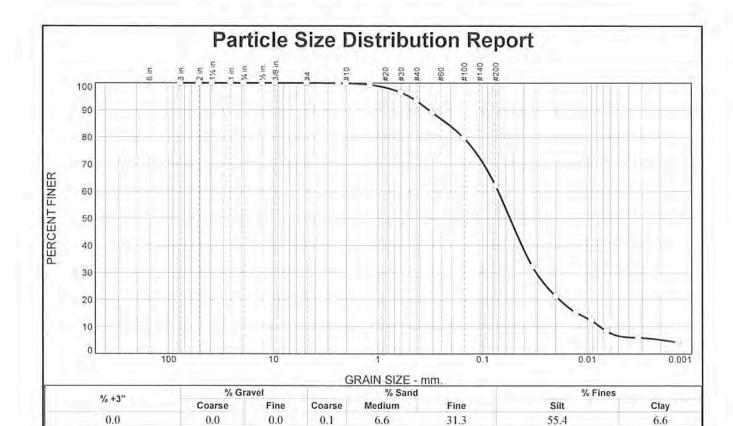
Date Sampled:

PATRIOT ENGINEERING and Environmental, Inc.

Client: Haley and Aldrich

Project: IPL Petersburg CCR Material

Project No: 18-1452-03C



TEST RESULTS				
Opening	Percent	Spec.*	Pass?	
Size	Finer	(Percent)	(X=Fail)	
3.0"	100.0	F-2 3-5-0		
2.0	100.0			
1.5	100.0			
1.0	100.0			
.75	100.0			
.50	100.0			
375	100.0			
#4	100.0			
#8	99.9			
#10	99.9			
#16	99.3			
#30	96.4			
#40	93.3			
#50	89.0			
#100	79.6			
#200	62.0			
0.0331 mm	32.1			
0.0197 mm.	21.2			
0.0127 mm	15.2			
0.0091 mm	12.3	.1.		
0.0065 mm.	8.3			
0.0032 mm	6.0			
0.0013 mm.	4.2			

Sandy silt	Material Descri	ption
PL= NP	erberg Limits (AST	TM D 4318) PI= NP
USCS (D 2487)=	Classification ML AASHT	on O (M 145)= A-4(0)
D <sub>90</sub> = 0.3239 D <sub>50</sub> = 0.0545 D <sub>10</sub> = 0.0075	Coefficients D85= 0.2164 D30= 0.0306 Cu= 9.43 Remarks	D60= 0.0709 D15= 0.0124 Cc= 1.76
Date Received:		e Tested: 9/20/18
Tested By:		
Checked By:	J. Vieck Engineer	

\* (no specification provided)

Location: Conditioned Flyash Sample Number: 3728

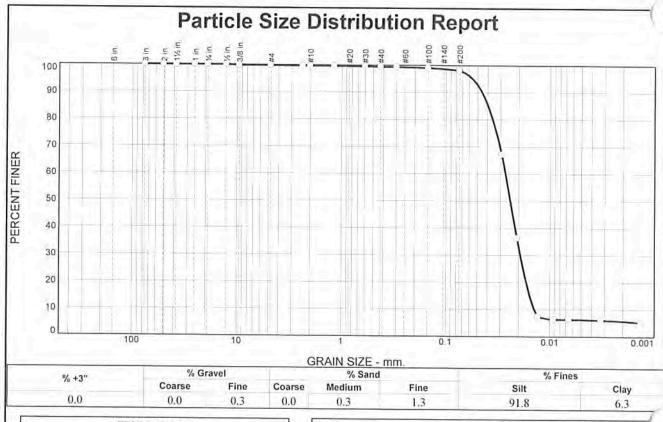
Date Sampled:

PATRIOT ENGINEERING and Environmental, Inc.

Client: Haley and Aldrich

Project: IPL Petersburg CCR Material

Project No: 18-1452-03C



TEST RESULTS				
Opening	Percent	Spec.*	Pass?	
Size	Finer	(Percent)	(X=Fail)	
3.0"	100.0			
2.0	100.0			
1.5	100.0			
1.0	100.0			
.75	100.0			
.50	100.0			
.375	99.8			
#4	99.7			
#8	99.7	11		
#10	99.7	lu n		
#16	99.6			
#30	99.5			
#40	99.4			
#50	99.3			
#100	99.0			
#200	98.1			
0.0292 mm	67.1			
0.0207 mm	36.2			
0.0130 mm.	7.3			
0.0092 mm.	6.3			
0.0065 mm	6.3			
0.0032 mm	6.1			
0.0013 mm.	5.3			
-				
* *	ification provide	11		

Silt	Material Descrip	otion
PL= NP	erberg Limits (AST LL= NV	M D 4318) PI= NP
USCS (D 2487)=	Classification ML AASHTO	n D (M 145)= A-4(0)
D <sub>90</sub> = 0.0451 D <sub>50</sub> = 0.0240 D <sub>10</sub> = 0.0141	Coefficients D <sub>85</sub> = 0.0395 D <sub>30</sub> = 0.0192 C <sub>u</sub> = 1.90	D <sub>60</sub> = 0.0268 D <sub>15</sub> = 0.0156 C <sub>c</sub> = 0.98
	Remarks	
Date Received:	Date	Tested: 9/20/18
Tested By:	N. Durkee	
Checked By:	J. Vieck	
Title:	Engineer	

Location: WWT Headworks Sample Number: 3629

Date Sampled:

PATRIOT ENGINEERING and Environmental, Inc.

Client: Haley and Aldrich

Project: IPL Petersburg CCR Material

Project No: 18-1452-03C



### PATRIOT ENGINEERING

and Environmental, Inc. 601 E. Sycamore St. Evansville, IN 47713 (812) 477-0050 FAX: (812) 477-0094

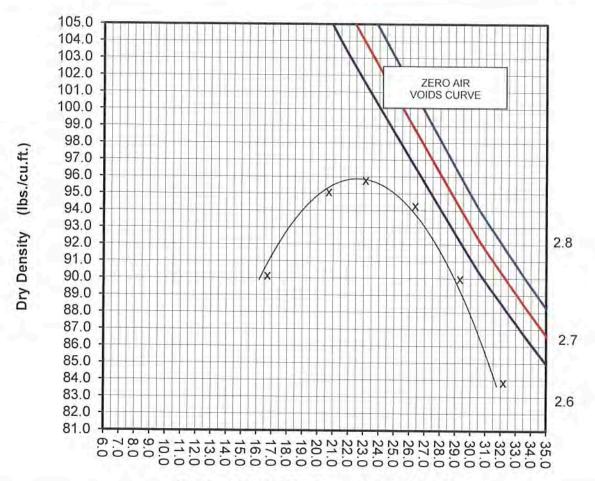
氮	Original
	Amended

Project: IPL Pet	ersburg CCR Material	Client:	Haley & Aldrich
Project number:	18-1452-03		
Date Received:	9/14/2018	Sample Number:	see below
Date Tested:	9/20/2018	Sampled by:	Contractor
Source:		Tested by:	N. Durkee
Sample #	Description	рН	
3725	Scrubber Sludge & Flyash	8.87	
3726	Gypsum	7.63	
3727	Bottom Ash	8.07	
3728	Conditioned Flyash	9.06	
3729	WWT Headworks	8.03	



ASTM D 698, AASHTO T99 (Standard) ASTM D 1557, AASHTO T180 (Modified)

			Original Amended
Project Name:	IPL Petersburg CCR Material	Client:	Haley & Aldrich
Project Number:	18-1452-03		المراج الشارات
Date Received:	9/14/2018		
Date Tested:	9/19/2018	Sampled By:	Client
Sample Number:	3725	Tested By:	LY
Proctor Type:	Standard ASTM D698, AASTHO T99	Sample Source:	onsite material

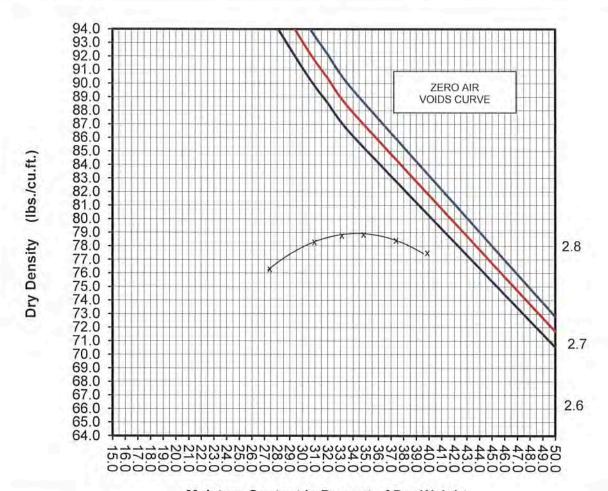


Maximum Dry Density:	95.9pcf	Optimum Moisture Content:	22.5%
Sample Description:	Scrubber sludge and flyash		
Method:	Manual rammer, procedure A		



ASTM D 698, AASHTO T99 (Standard) ASTM D 1557, AASHTO T180 (Modified)

			OriginalAmended
Project Name:	IPL Petersburg CCR Material	Client:	Haley & Aldrich
Project Number:	18-1452-03		
Date Received:	9/14/2018		
Date Tested:	9/19/2018	Sampled By:	Client
Sample Number:	3726	Tested By:	ND
Proctor Type:	Standard ASTM D698, AASTHO T99	Sample Source:	onsite material

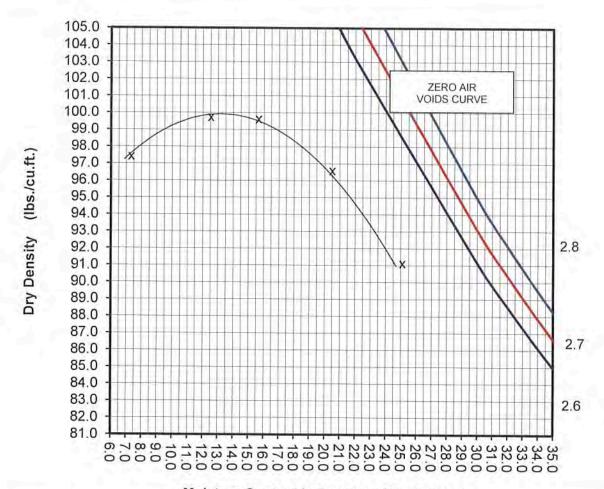


Maximum Dry Density:	79.0pcf	Optimum Moisture Content:	35.0%
Sample Description:	Gypsum		
Method:	Manual rammer, procedure A		



ASTM D 698, AASHTO T99 (Standard) ASTM D 1557, AASHTO T180 (Modified)

			Original Amended
Project Name:	IPL Petersburg CCR Material	Client:	Haley & Aldrich
Project Number:	18-1452-03		
Date Received:	9/14/2018		
Date Tested:	9/19/2018	Sampled By:	Client
Sample Number:	3727	Tested By:	LY
Proctor Type:	Standard ASTM D698, AASTHO T99	Sample Source:	onsite material

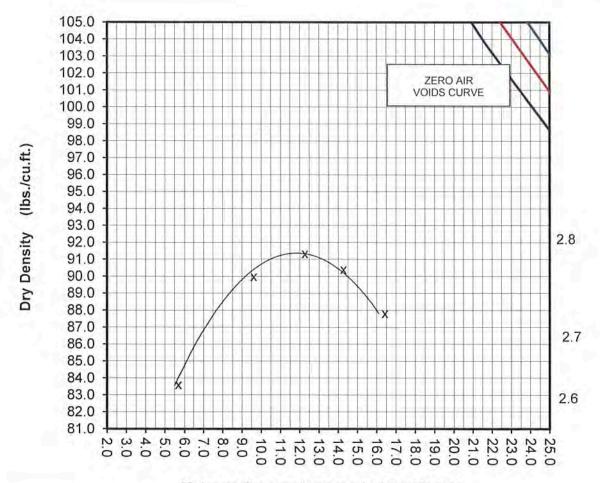


Maximum Dry Density:	99.9pcf	Optimum Moisture Content:	13.0%
Sample Description:	Bottom Ash		
Method:	Manual rammer, procedure A		



ASTM D 698, AASHTO T99 (Standard) ASTM D 1557, AASHTO T180 (Modified)

			Original Mended
Project Name:	IPL Petersburg CCR Material	Client:	Haley & Aldrich
Project Number:	18-1452-03	7	
Date Received:	9/14/2018		
Date Tested:	9/19/2018	Sampled By:	Client
Sample Number:	3728	Tested By:	LY
Proctor Type:	Standard ASTM D698, AASTHO T99	Sample Source:	onsite material

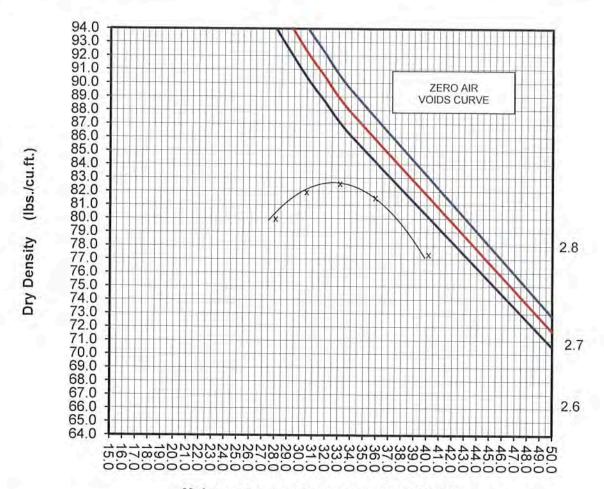


Maximum Dry Density:	91.4 pcf	Optimum Moisture Content:	12.0%
Sample Description:	Conditioned Flyash	THE RICH FLANTS	
Method:	Manual rammer, procedure A		
	Yes		



ASTM D 698, AASHTO T99 (Standard) ASTM D 1557, AASHTO T180 (Modified)

			Original Amended
Project Name:	IPL Petersburg CCR Material	_ Client:	Haley & Aldrich
Project Number:	18-1452-03		
Date Received:	9/14/2018		
Date Tested:	9/19/2018	Sampled By:	Client
Sample Number:	3729	Tested By:	ND
Proctor Type:	Standard ASTM D698, AASTHO T99	Sample Source:	onsite material



Maximum Dry Density:	82.6 pcf	Optimum Moisture Content:	32.5%
Sample Description:	WWT Headworks		
Method:	Manual rammer, procedure A		

Site Photos

601 E. Sycamore St. Evansville, IN 47713 (812) 477-0050 Fax (812) 477-0094

Project Name: IPL Petersburg CCR Material

Client: Haley & Aldrich

Contractor: AES

Weather:

Patriot Rep: Brian Crase

Patriot Job Number: 18-1452-03C

Date: 9/27/2018



WWT Headworks. Test performed on 9-27-18. Sample taken on 9-14-18.

Approximately 34 degrees.



Remarks:





Remarks

Site Photos

601 E. Sycamore St. Evansville, IN 47713 (812) 477-0050 Fax (812) 477-0094

Project Name: IPL Petersburg CCR Material

Client: Haley & Aldrich

Contractor: AES

Weather:

Patriot Rep: Brian Crase

Patriot Job Number: 18-1452-03C

Date: 9/27/2018



Scrubber Sludge and Flyash. Test performed on 9-27-18. Sample taken on 9-14-18. Approximately 36 degrees.



Remarks:





Remarks

## **PATRIOT ENGINEERING** and Environmental, Inc. 601 E. Sycamore St. Evansville, IN 47713 (812) 477-0050 Fax (812) 477-0094

Site Photos

Project Name: IPL Petersburg CCR Material

Client: Haley & Aldrich

Contractor: AES

Weather:

Patriot Rep: Brian Crase

Patriot Job Number: 18-1452-03C

Date: 9/27/2018

### Remarks:

Gypsum. Test performed on 9-27-18. Sample taken on 9-14-18. Approximately 39.5 degrees.



### Remarks:





Remarks

Site Photos

601 E. Sycamore St. Evansville, IN 47713 (812) 477-0050 Fax (812) 477-0094

Project Name: IPL Petersburg CCR Material

Client: Haley & Aldrich

Contractor: AES

Weather:

Patriot Rep: Brian Crase

Patriot Job Number: 18-1452-03C

Date: 9/27/2018

### Remarks:

Conditioned Flyash. Test performed on 9-27-18. Sample taken on 9-14-18. Approximately 36 degrees.



### Remarks:





Remarks

Site Photos

601 E. Sycamore St. Evansville, IN 47713 (812) 477-0050 Fax (812) 477-0094

Project Name: IPL Petersburg CCR Material

Client: Haley & Aldrich

Contractor: AES

Weather:

Patriot Rep: Brian Crase

Patriot Job Number: 18-1452-03C

Date: 9/27/2018



Bottom Ash. Test performed on 9-27-18. Sample taken on 9-14-18. Approximately 39.5 degrees.



Remarks:





Remarks

### **APPENDIX E**

American Coal Ash Association (ACAA) 2016 Coal Combustion Product (CCP)
Production & Use Survey Report

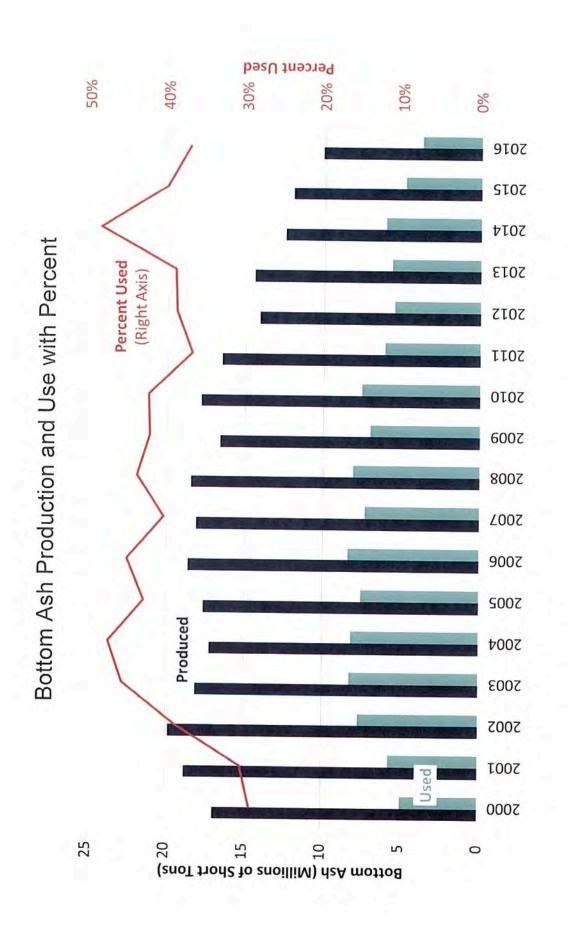


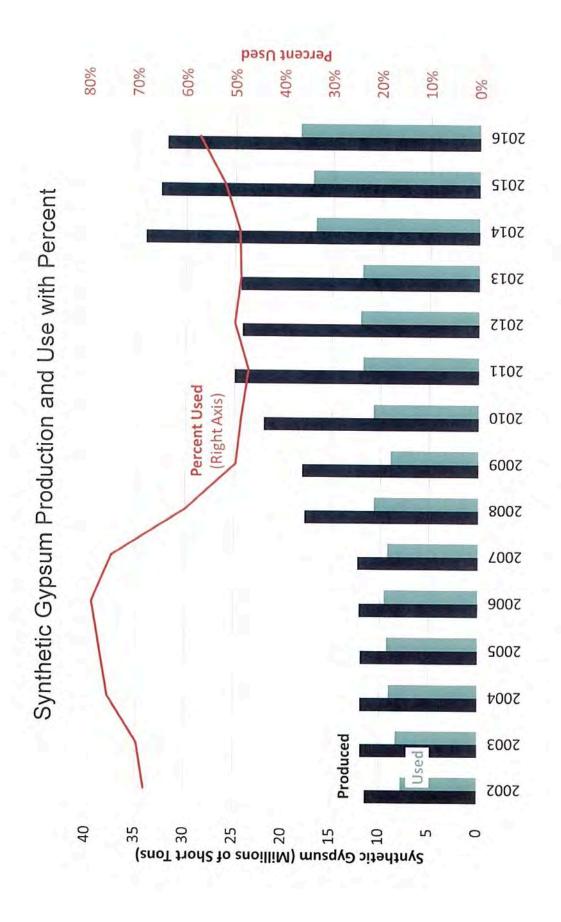
American Coal Ash Association Phone: 720-870-7897
5800 Country Club Drive Fax: 720-870-7889
5870 Country Club Drive Fax: 720-870-7889
5871 Farmington Hills, Mil 48331 Internet: www.ACAA-USA.org
Email: info@acaa-usa.org

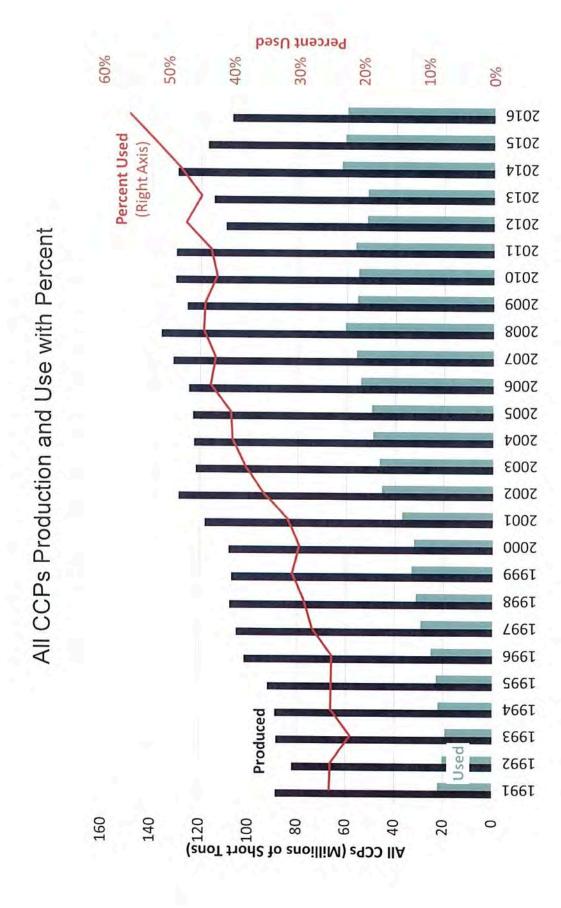
# 2016 Coal Combustion Product (CCP) Production & Use Survey Report

The state of the s	The state of the s		Constitution in the contract of	nonononia enciaci	Denembra duncarion versus michaelon Lorais (short Lons)				
2016 CCP Categories	Fly Ash	Bottom Ash	Boiler Slag	FGD Gypsum	FGD Material Wet Scrubbers	FGD Material Dry Scrubbers	FGD Other	FBCAsh	CCP Production /
otal CCPs Produced by Category	37,847,327	10,135,360	2,188,298	32,006,516	9,556,694	1,448,752	7,508	14,267,412	107,427,866
Total CCPs Used by Category	22,634,497	3,775,480	1,310,959	18,372,663	896,141	310,607	0	12,869,437	60,169,785
Concrete/Concrete Products /Grout	14,362,891	504,416	0	468,748	0	0	0	0	15 338 056
Blended Cement/ Feed for Clinker	2,680,712	1,015,756	34,867	1,009,259	0	51.704	0		4 702 200
Flowable Fill	83,947	0	0	0	0	0	0	0 0	83 047
Structural Fills/Embankments	1,696,296	745,213	0	1,490,267	896,141	0	0	0	719 708 7
Road Base/Sub-base	472,609	245,569	0	0	0	0	0	0	718 178
Soil Modification/Stabilization	433,189	42,884	0	1,495	0	0	0	0	477 568
Mineral Filter in Asphalt	40,969	0	10,592	0	0	8,912	0	0	CC7 US
Snow and ice Control	0	343,237	12,364	0	0	0	0	0	355 601
Blasting Grif/Roofing Granules	0	18,042	1,253,136	0	0	0	0	0	1 271 178
10. Mining Applications	1,043,002	211,670	0	794,133	0	131.738	0	12 729 673	14 010 215
11. Gypsum Panel Products (formerly Wallboard)	0	0	0	9,919,177	0	0	0	0	771,919,9
12. Waste Stabilization/Solidification	767,895	318,516	0	3,632,056	0	109,244	0	139,765	4 967 476
13. Agriculture	2,679	3,789	0	570,573	0	1,106	0	0	778 147
14. Aggregate	0	206,100	0	0	0	0	0	0	206 400
15. Oil/Gas Field Services	190,247	0	0	0	0	7,904	0	0	198 150
16. CCR Pond Closure Activities	254,521	3,142	0	177,013	0	0	0	0	434 675
17. Miscellaneous/Other	605,541	117,148	0	109,941	0	0	0	0	832 630
			Summary	Summary Utilization to Production Rate	ion Rate				and the same of th
CCP Categories	Fly Ash	Bottom Ash	Boiler Slag	FGD Gypsum	FGD Material Wet Scrubbers	FGD Material Dry Scrubbers	FGD Other	FBCAsh	CCP Utilization Total
Totals by CCP Type/Application	22,634,497	3,775,480	1,310,959	18,372,663	191'968	310,607	0	12,869,437	60,169,785
Category Use to Production Rate [X]	59.85%	37.25x	59.91x	57.40%	9.38×	21.44%	0.00%	90.20%	56.01×
2016 Cenospheres Sold (Pounds) CCPs Imported in 2016 (Short Tons)	0	Data is this survey r Power Monthle.	epresents 194,318	532 GVs of Name	Dats is this surrey represents 134,31632 GVs of Name Plate rating of the total industry wide approximate 272 GV capacity based on EIA's July 2017 Electric Power Monthly.	l industry wide approxi	mate 272 GV cap	scity based on FIA	's July 2017 Electric
CCPS Exported in 2016 (Short Tons)	0								

30% Percent Used %01 %09 20% 20% 10% %0 9107 Percent Used STOZ (Right Axis) 2014 Fly Ash Production and Use with Percent 2013 2012 2011 2010 5007 2008 2002 9007 2002 2004 2003 2002 Produced 2007 Used 2000 90 (snoT front of Short Tons) had yla 80 20 10 0







### **APPENDIX F**

**CCR Materials Screening Analysis Results** 



TABLE 1
LEACHATE SAMPLE RESULTS
CCR BENEFICIAL USE ASSESSMENT
AES/IPL PETERSBURG
PETERSBURG, INDIANA

Constituent	Units	Bottom Ash 18 hr 01/09/2018 50188189007	Bottom Ash 18 hr 10/03/2017 50181275007	Bottom Ash 18 hr 04/04/2018 50193927007	Bottom Ash 18 hr 07/11/2018 50201164003	Bottom Ash 30 Day 01/09/2018 50188189008	Bottom Ash 30 Day 04/04/2018 50193927008	Bottom Ash 30 Day 07/11/2018 50201164004	Bottom Ash 30 day 10/03/2017 50181275008
Inorganic Compounds									
Aluminum	mg/L	0.2 U	0.42	0.42	0.77	0.2 U	2.2	0.31	0.31
Antimony	mg/L				0.006 U			0.008 U	3337
Arsenic	mg/L	0.01 U	0.025	0.01 U	0.016	0.01 U	0.013	0.01 U	0.01 U
Barium	mg/L	0.01	0.023	0.027	0.01 U	0.025	0.038	0.01 U	0.024
Boron	mg/L	0.38	0.45	1.5	0.1 U	0.66	1.7	0.22	0.77
Cadmium	mg/L	0.002 U	0.002 U	0.002 U	0.002 U				
Chromium	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Cobalt	mg/L				0.01 U			0.01 U	
Copper	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Iron	mg/L	0.29	0.1 U	0.1 U	0.12	0.41	3.6	0.33	0.65
Lead	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Magnesium	mg/L	1.3	2.5	4.2	1 U	2.8	6.9	1.2	4.4
Manganese	mg/L	0.012	0.01 U	0.048	0.01 U	0.053	0.021	0.012	0.034
Mercury	mg/L	0.002 U	0.002 U	0.002 U	0.002 U				
Molybdenum	mg/L	0.01 U	0.01 U	0.03	0.01 U	0.022	0.042	0.016	0.013
Nickel	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.021	0.01 U	0.01 U	0.01 U
Potassium	mg/L	1 U	1 U	1 U	1 U	1.9	2.9	2.4	2.5
Selenium	mg/L	0.01 U	0.01 U	0.01	0.01 U	0.01 U	0.017	0.01 U	0.01 U
Silver	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Sodium	mg/L	1 U	1.1	10.4	1.3	1 U	11.7	2.1	2.2
Thallium	mg/L				0.01 U			0.01 U	
Vanadium	mg/L	0.01 U	0,011	0.01 U	0.01 U				
Zinc	mg/L	0.02 U	0.02 U	0.02 U	0.02 U				
Other	6.50							A 30 4.5 A 4	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Acidity, Total	mg/L	10 U	10 U	10 U	10 U				
Alkalinity, Total as CaCO3	mg/L	8.6	11.6	10.1	15.8	21.2	22.7	14.1	25.7
Chloride	mg/L	1 U	1.8	3.4	1 U	1 U	4.1	1 U	2.2
Fluoride	mg/L	0.53	0.32	3.3	0.1 U	4	4	0.1 U	0.4
pH at 25 Degrees C	Std. Units	7.6	8.4	7.9	9	7.1	7.7	7.2	7.8
Sulfate	mg/L	46.1	289	1810	20.1	75.9	1830	39.6	181
Sulfide	mg/L	0.1 U	0.1 U	0.1 U	0.1 U				
Total Dissolved Solids	mg/L	88	435	2210	24	144	2270	70	270
Total Organic Carbon	mg/L	10	1 U	1 U	1 U	1 U	1 Ü	1 U	1 U
Initial pH	Std. Units	6.9		17.7					
Final pH	Std. Units	6.9	7.93	7.21	8.52	7.41	8.17	7.08	7.57

TABLE 1
LEACHATE SAMPLE RESULTS
CCR BENEFICIAL USE ASSESSMENT
AES/IPL PETERSBURG
PETERSBURG, INDIANA

Constituent	Units	Filter Cake (IUCS) 18 hr 07/11/2018 50201164011	Filter Cake (IUCS) 30 Day 07/11/2018 50201164012	Filter Cake 18 hr 01/09/2018 50188189015	Filter Cake 18 hr 10/03/2017 50181275015	Filter Cake 18 hr 04/04/2018 50193927015	Filter Cake 30 Day 01/09/2018 50188189016	Filter Cake 30 Day 04/04/2018 50193927016	Filter Cake 30 day 10/03/2017 50181275016
Inorganic Compounds				00,100,000,10	00101210010	00100027010	50100100010	50155527010	30101273010
Aluminum	mg/L	0.38	0.48	0.48	0.49	0.43	0.56	0.69	0.7
Antimony	mg/L	0.03	0.032		0.10	0.10	0.00	0.03	0.7
Arsenic	mg/L	0.21	0.27	0.29	0.14	0.29	0.42	0.39	0.29
Barium	mg/L	0.058	0.079	0.054	0.078	0.071	0.069	0.11	0.1
Boron	mg/L	13.9	14.5	11	10.9	11.7	11.5	12.6	11.7
Cadmium	mg/L	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Chromium	mg/L	0.01 U	0.01 U	0.011	0.01 U	0.015	0.002 U	0.002 0	0.002 U
Cobalt	mg/L	0.01 U	0.01 U	0.011	0.010	0.013	0.010	0.014	0.010
Copper	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Iron	mg/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U		
Lead	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.1 U	0.1 U	0.1 U	0.17
Magnesium	mg/L	13.2	15.2	5.7	8	8.9	12.8	0.01 U	0.01 U
Manganese	mg/L	0.01 U	0.011	0.01 U	0.01 U	0.01 U		9.8	9
Mercury	mg/L	0.002 U	0.002 U	0.002 U	0.010 0.002 U		0.01 U	0.01 U	0.011
Molybdenum	mg/L	0.85	0.85	0.002 0	0.002 0	0.002 U	0.002 U	0.002 U	0.002 U
Nickel	mg/L	0.01 U	0.01 U			0.95	0.73	0.96	0.63
Potassium	mg/L	7		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Selenium		0.34	7.1 0.3	7.7	8.8	6.9	6.9	7.4	9.4
Silver	mg/L			0.3	0.23	0.29	0.27	0.29	0.2
Sodium	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	mg/L	277	256	317	269	282	272	285	277
Thallium	mg/L	0.01 U	0.01 U	2.42	2.2.10			1 Page	
Vanadium	mg/L	0.13	0.17	0.13	0.049	0.13	0.17	0.23	0.12
Zinc	mg/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Other		1000	Sec. 12	10.10	13.0				100,000
Acidity, Total	mg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Alkalinity, Total as CaCO3	mg/L	74.2	63.7	72.5	63.6	87	77.5	81.3	67
Chloride	mg/L	160	141	121	137	133	120	135	133
Fluoride	mg/L	0.9	1.2	1.3	1.5	1.2	1,8	1.7	2.3
pH at 25 Degrees C	Std. Units	9.1	8.9	9.4	9.1	9.2	9.1	9.2	9.1
Sulfate	mg/L	870	868	1650	1690	1500	1540	1810	2000
Sulfide	mg/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Total Dissolved Solids	mg/L	2320	2870	2570	3000	1930	2840	2720	3070
Total Organic Carbon	mg/L	1 U	1 U	1.3	1 U	1.3	1 U	1 U	1 U
Initial pH	Std. Units		Take 1	9.39			A PA	1 9 2 9 4 1	
Final pH	Std. Units	8.67	8.68	9.39	9.02	9,25	9.14	9.18	9

TABLE 1
LEACHATE SAMPLE RESULTS
CCR BENEFICIAL USE ASSESSMENT
AES/IPL PETERSBURG
PETERSBURG, INDIANA

Constituent	Units	Fly Ash 18 hr 01/09/2018 50188189019	Fly Ash 18 hr 10/03/2017 50181275019	Fly Ash 18 hr 04/04/2018 50193927019	Fly Ash 18 hr 07/11/2018 50201164015	Fly Ash 30 Day 01/09/2018 50188189020	Fly Ash 30 Day 04/04/2018 50193927020	Fly Ash 30 Day 07/11/2018 50201164016	Fly Ash 30 day 10/03/2017 50181275020
Inorganic Compounds							1		
Aluminum	mg/L	5	5.8	3.3	1.1	5.5	8.9	1	6.3
Antimony	mg/L	1.23-	10 33 4	A	0.021		100.0	0.035	400
Arsenic	mg/L	1.6	1.9	1.6	0.49	2	2.1	0.7	2.2
Barium	mg/L	0.01 U	0.012	0.01 U	0.02	0.016	0.036	0.035	0.014
Boron	mg/L	11.3	9.8	8.5	24.1	12.7	8.6	24	11.3
Cadmium	mg/L	0.01 U	0.002 U	0.0046	0.002 U	0.01 U	0.0024	0.0021	0.002 U
Chromium	mg/L	0.021	0.025	0.023	0.01 U	0.031	0.034	0.012	0.034
Cobalt	mg/L				0.01 U			0.01 U	
Copper	mg/L	0.01 U	0.01 U	0.01 U	0.015	0.01 U	0.011	0.01 U	0.01 U
Iron	mg/L	0.1 U	0.1	0.1 U	0.1 U	0.1 U	3.6	0.1 U	0.1 U
Lead	mg/L	0.01 U	0.023	0.01 U	0.01 U				
Magnesium	mg/L	1	1 U	1 U	25.1	1 U	1.1	22.7	1 U
Manganese	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Mercury	mg/L	0.002 U	0.002 U	0.002 U	0.002 U				
Molybdenum	mg/L	1.4	1.3	1	0.62	1.4	0.99	0.78	1.4
Nickel	mg/L	0.02	0.02	0.014	0.026	0.02	0.029	0.03	0.022
Potassium	mg/L	13.3	12.2	13.5	14.8	14.9	14.4	15.5	13
Selenium	mg/L	0.62	0.64	0.51	0.4	0.65	0.49	0.42	0.69
Silver	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Sodium	mg/L	990	949	724	618	949	627	568	955
Thallium	mg/L	555	0.10	167	0.01 U	343	027	0.01 U	333
Vanadium	mg/L	0.38	0.42	0.29	0.12	0.59	0.46	0.22	0.62
Zinc	mg/L	0.02 U	0.048	0.02 U	0.02 U				
Other	mg/L	0.02 0	0.02 0	0.02 0	0,02 0	0.02 0	0.046	0.02 0	0.02 0
Acidity, Total	mg/L	10 U	10 U	10 U	10 U				
Alkalinity, Total as CaCO3	mg/L	246	290	115	86.3	216	120	91.2	247
Chloride	mg/L	265	254	176	309	277	155	293	254
Fluoride	mg/L	1.7	1.7	1.1	1.3	2	0.97	1.6	1.7
pH at 25 Degrees C	Std. Units	10.5	10.6	9.8	9.2	10.4	9.8	9.2	10.6
Sulfate	mg/L	1420	1630	1640	826	1410	1450	719	1610
Sulfide	mg/L	0.1 U	0.1 U	0.1 U	0.1 U				
Total Dissolved Solids	mg/L	3140	3020	2120	2290	3020	1870		3060
Total Organic Carbon	mg/L	1,3	3.5	2.7	1.5			2150	
Initial pH	Std. Units	10.44	3,5	2.1	1.5	1	2.2	1.1	3.4
	Std. Units	10.44	10.07	0.00	0.04	10.51	0.04		40.00
Final pH	Std. Units	10.44	10.67	9.89	8.84	10.54	9.91	9	10.66

TABLE 1
LEACHATE SAMPLE RESULTS
CCR BENEFICIAL USE ASSESSMENT
AES/IPL PETERSBURG
PETERSBURG, INDIANA

Constituent	Units	Gypsum 18 hr 01/09/2018 50188189011	Gypsum 18 hr 10/03/2017 50181275011	Gypsum 18 hr 04/04/2018 50193927011	Gypsum 18 hr 07/11/2018 50201164007	Gypsum 30 Day 01/09/2018 50188189012	Gypsum 30 Day 04/04/2018 50193927012	Gypsum 30 Day 07/11/2018 50201164008	Gypsum 30 day 10/03/2017 50181275012
Inorganic Compounds	17.50								
Aluminum	mg/L	0.33	0.26	0.41	0.42	0.2 U	0.2 U	0.24	0.2 U
Antimony	mg/L			L PA	0.008 U			0.008 U	
Arsenic	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Barium	mg/L	0.026	0.025	0.027	0.024	0.024	0.023	0.022	0.021
Boron	mg/L	1.7	0.66	2.8	1.1	2.2	2.8	1.3	0.76
Cadmium	mg/L	0.002 U	0.002 U	0.002 U	0.002 U				
Chromium	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Cobalt	mg/L				0.01 U			0.01 U	
Copper	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Iron	mg/L	0.1 U	0.16	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Lead	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Magnesium	mg/L	11.9	3.9	16	8.2	16	16.5	9.6	5.1
Manganese	mg/L	0.029	0.01 U	0.13	0.03	0.01 U	0.11	0.01 U	0.01 U
Mercury	mg/L	0.002 U	0.002 U	0.002 U	0.002 U				
Molybdenum	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.012	0.01 U	0.01 U	0.01 U
Nickel	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Potassium	mg/L	1 U	10	1 U	1 U	1.1	1 U	1 U	1 U
Selenium	mg/L	0.015	0.015	0.012	0.017	0.02	0.012	0.022	0.019
Silver	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Sodium	mg/L	5.6	1.6	2.4	3	7.6	2.4	3.2	2.9
Thallium	mg/L	0.0	1.0		0.01 U	7.0	2.4	0.01 U	2.5
Vanadium	mg/L	0.01 U	0,01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Zinc	mg/L	0.02 U	0.02 U	0.01 U	0.02 U				
Other	mg/L	0.02 0	0.02.0	0.02 0	0.02.0	0,02 0	0.02 0	0.02 0	0.02 0
Acidity, Total	mg/L	10 U	10 U	10 U	10 U				
Alkalinity, Total as CaCO3	mg/L	15.3	7.2	10.3	7.8	16.8	13.6	9.6	10.2
Chloride	mg/L	6.1	2.9	12.4	5	7.2	11.4	5.1	3.1
Fluoride	mg/L	0.58	3.6	5.5	3.2	5	6.4	4.2	4.3
pH at 25 Degrees C	Std. Units	8	7.9	7.8	8.1	7.5	6.5	8	8
Sulfate	mg/L	1520	1530	1800	905	1740	1840	751	
Sulfide	mg/L	0.1 U	0.1 U		1550				
Total Dissolved Solids	mg/L	2280	2170	2170	2260	2320	2220	0.1 U	0.1 U
Total Organic Carbon	mg/L	1 U	1 U	1 U	1 U		The second secon	2220	2210
Initial pH	Std. Units	7.32	1.0	10	10	1 U	1.0	10	1 U
Final pH	Std. Units	7.32	7.18	7.41	7,54	7.50	0.40	55.10	7.10
mai pri	old. Units	1.32	1.10	1.41	7,54	7.58	8.13	7.1	7.16

TABLE 1
LEACHATE SAMPLE RESULTS
CCR BENEFICIAL USE ASSESSMENT
AES/IPL PETERSBURG
PETERSBURG, INDIANA

		WWTP	I WWTP
	16	Headworks	Headworks
	11 11	18 hr	
			30 Day
	Maria Ma	07/11/2018	07/11/2018
Constituent	Units	50201164019	50201164020
Inorganic Compounds		20.00	
Aluminum	mg/L	0.62	0.2 U
Antimony	mg/L	0.008 U	0.008 U
Arsenic	mg/L	0.01 U	0.01 U
Barium	mg/L	0.029	0.024
Boron	mg/L	17.5	13.7
Cadmium	mg/L	0.002 U	0.002 U
Chromium	mg/L	0.01 U	0.01 U
Cobalt	mg/L	0.01 U	0.01 U
Copper	mg/L	0.01 U	0.01 U
Iron	mg/L	0.1 U	0.1 U
Lead	mg/L	0.01 U	0.01 U
Magnesium	mg/L	124	95.8
Manganese	mg/L	0.5	0.01 U
Mercury	mg/L	0.002 U	0.002 U
Molybdenum	mg/L	0.016	0.013
Nickel	mg/L	0.01 U	0.01 U
Potassium	mg/L	2.9	2.4
Selenium	mg/L	0.061	0.056
Silver	mg/L	0.01 U	0.01 U
Sodium	mg/L	27.9	21.6
Thallium	mg/L	0.01 U	0.01 U
Vanadium	mg/L	0.01 U	0.01 U
Zinc	mg/L	0.02 U	0.01 U
Other	mg/L	0.02 0	0,02.0
Acidity, Total	mg/L	10 U	17
Alkalinity, Total as CaCO3	mg/L	21.3	23.9
Chloride	mg/L	89	69.9
Fluoride	mg/L	7.8	7.8
pH at 25 Degrees C	Std. Units	8.2	7.5
Sulfate	mg/L	1040	868
Sulfide	mg/L	0.1 U	0.1 U
Total Dissolved Solids	mg/L	2940	2800
Total Organic Carbon		1 U	1 U
Initial pH	mg/L	1.0	10
	Std. Units	0.04	7.70
Final pH	Std. Units	8.04	7.73

### TABLE 1 LEACHATE SAMPLE RESULTS CCR BENEFICIAL USE ASSESSMENT **AES/IPL PETERSBURG**

### Notes:

Blank cells indicate constituent not analyzed.

CCR - Coal Combustion Residuals.

IUCS - IU Conversion Systems, Inc.

mg/L - milligrams per liter.

U - Constituent was not detected, value is the reporting limit. WWT FGD - Wastewater Treatment Flue Gas Desulfurization.

Sampling results for antimony, cobalt, and thallium are available for the most recent sampling round only.

### **APPENDIX F-1**

**Bulk Solids Screening Analysis** 



TABLE 1
BULK (SOLID) MATERIAL SAMPLE RESULTS
CCR BENEFICIAL USE ASSESSMENT
AES/IPL PETERSBURG
PETERSBURG, INDIANA

	4 (5)	Bottom Ash Bulk 01/09/2018	Bottom Ash Bulk 10/03/2017	Bottom Ash 04/04/2018	07/11/2018	Filter Cake (IUCS) 07/11/2018	Filter Cake Bulk 01/09/2018	Filter Cake Bulk 10/03/2017	Filter Cake 04/04/2018
Constituent	Units	50188189005	50181275005	50193927005	50201164001	50201164009	50188189013	50181275013	50193927013
Inorganic Compounds			THE SECTION	7370		1.139	2612	2000	1070
Aluminum	mg/kg	4880	4350	3930	5230	5240	5740	5220	4670
Antimony	mg/kg			14 135 14	0.9 U	0.97	1.22	C15	11 5 22 2 4 1
Arsenic	mg/kg	8.5	9.8	11	6.2	45.4	68.6	60.3	47.9
Barium	mg/kg	24.7	22.1	19.4	19.8	32.1	36.2	34.9	29.9
Boron	mg/kg	58.5	62.9	81.2	37.7	350	284	321	303
Cadmium	mg/kg	0.47 U	0.45 U	0.43 U	0.45 U	0.74	1.6	1.1	0.51
Chromium	mg/kg	11	8.8	9.1	8.1	20.2	28.5	22.9	19.5
Cobalt	mg/kg	33.1			2.5	4.4	1 Y		
Copper	mg/kg	16.5	11.1	9.2	12.5	21.3	22.4	19.1	18.9
Iron	mg/kg	23600	20500	14100	15100	14800	23000	21300	14000
Lead	mg/kg	2.9	2.9	2.5	1.3	12.7	15.8	16.7	10.6
Magnesium	mg/kg	327	383	896	319	2390	1990	1840	2090
Manganese	mg/kg	23.9	32.6	39.2	24.9	47.4	56.1	45.5	50
Mercury	mg/kg	0.019 U	0.02 U	0.05	0.02 U	0.51	0.54	0.43	0.4
Molybdenum	mg/kg	3.9	2	3.1	3.1	19.4	19.6	14.6	20.2
Nickel	mg/kg	19.3	15.6	12.3	13.1	21.5	26.2	22.9	19.7
Potassium	mg/kg	712	537	484	697	914	1020	1060	878
Selenium	mg/kg	0.94 U	2.8	1.8	0.9 U	10.6	10.4	10.8	8.5
Silver	mg/kg	0.47 U	0.45 U	0.43 U	0.45 U	0.43 U	0.49 U	0.48 U	0.44 U
Sodium	mg/kg	207	201	378	189	5250	6260	6590	5600
Thallium	mg/kg	200	201	2.5	1.5	2.7			Karata Karata
Vanadium	mg/kg	23.2	18.8	16.8	22.9	41.9	52.4	41.2	38.7
Zinc	mg/kg	19.2	17.7	16.4	15	37.5	47	40.1	30
Other	mama	10.12		130.0		2.2		A Substitute of	
Acidity, Total	mg/kg	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Chloride	mg/kg	99.8 U	100 U	99.7 U	100 U	3100	2270	2860	2520
Fluoride	mg/kg	10 U	10 U	27.7	10 U	15.9	15.6	20.3	17.1
Percent Moisture	%	22.8	9.4	15.9	17.1	26.4	20.9	22.2	26
pH at 25 Degrees C	Std. Units		7.5	8.1	7.8	9.2	9	8.8	9.4
Sulfate	mg/kg	884	3100	18200	395	14200	13600	21200	21800
Sulfide		50 U	50 U	9220	50 U	50100	50100	32100	76100
Mean Total Organic Carbon	mg/kg	80600	44000	12500	29300	14200	12400	15700	6760
iviean Total Organic Carbon	mg/kg	80000	44000	12300	25500	14200	12400	13700	0,00

TABLE 1
BULK (SOLID) MATERIAL SAMPLE RESULTS
CCR BENEFICIAL USE ASSESSMENT
AES/IPL PETERSBURG
PETERSBURG, INDIANA

		Fly Ash	Fly Ash	Fly Ash	Fly Ash	Gypsum	Gypsum	Gypsum	Gypsum	WWTP
	1	Bulk	Bulk	22	1001	Bulk	Bulk		CHAPTER COLUMN	Headworks
	1	01/09/2018	10/03/2017	04/04/2018	07/11/2018	01/09/2018	10/03/2017	04/04/2018	07/11/2018	07/11/2018
Constituent	Units	50188189017	50181275017	50193927017	50201164013	50188189009	50181275009	50193927009	50201164005	50201164017
Inorganic Compounds							33.3.2.3333			00201101011
Aluminum	mg/kg	7750	8330	7610	7940	544	318	581	534	708
Antimony	mg/kg				1.3				0.9 U	0.86 U
Arsenic	mg/kg	121	114	101	81.2	3.1	1.5	2.9	2.1	2.8
Barium	mg/kg	53.9	54.6	54.8	55.9	11.2	6.3	12	15	12.3
Boron	mg/kg	345	329	288	414	48.3	14.6	59.6	29.1	269
Cadmium	mg/kg	1.6	1.6	0.7	0.91	0.42 U	0.47 U	0.48 U	0.45 U	0.43 U
Chromium	mg/kg	39.9	37.6	33.6	32.8	3.1	2.4	3.4	2.7	3.9
Cobalt	mg/kg				10.4	3522	= = = = = = = = = = = = = = = = = = =		0.9 U	0.86 U
Copper	mg/kg	33.8	33.3	29.7	31.1	2.1	1.3	2.5	1.9	2.6
Iron	mg/kg	42000	39500	38900	45600	1050	622	1060	969	1430
Lead	mg/kg	29.5	31.4	23.9	24.4	0.85 U	0.93 U	0.96 U	0.9 U	0.86 U
Magnesium	mg/kg	586	553	524	846	1550	533	2540	621	2340
Manganese	mg/kg	52.2	50	55.7	55.9	25.9	14.7	22.2	13.2	19.4
Mercury	mg/kg	0.8	0.78	0.77	0.76	0.053	0.036	0.022	0.046	0.088
Molybdenum	mg/kg	30.4	29.1	23.9	14.2	0.85 U	0.93 U	0.96 U	0.9 U	0.98
Nickel	mg/kg	43.4	47	46.3	45.5	1.5	1.1	1.8	1.5	2.3
Potassium	mg/kg	1450	1540	1360	1310	186	122	195	177	252
Selenium	mg/kg	14.6	19.6	11.3	8.2	2.2	2.5	1.6	2.5	4.4
Silver	mg/kg	0.43 U	0.5 U	0.45 U	0.49 U	0.42 U	0.47 U	0.48 U	0.45 U	0.43 U
Sodium	mg/kg	20500	19200	8880	5920	196	46.6 U	60.2	63.4	282
Thallium	mg/kg			97.00	4.8	10000000		25/62/Atil	0.9 U	0.86 U
Vanadium	mg/kg	73	72.7	65	63.7	2.8	1.8	2.7	2.1	3.2
Zinc	mg/kg	74.5	71.8	59.3	58.3	9.4	5.8	10.8	7.6	11
Other		SA 750000	Kentene)	5250503475		99035-102	800000	1		
Acidity, Total	mg/kg	100 U	100 U	100 U	100 U					
Chloride	mg/kg	5020	5070	3030	4420	183	99.7 U	213	102	1500
Fluoride	mg/kg	28.9	38.1	18.1	22.8	31.8	38	34.4	76.9	90.3
Percent Moisture	%	0.25	0.28	5.1	0.75	22.1	22.7	23.4	19.4	26.2
pH at 25 Degrees C	Std. Units	10.2	10.3	9.6	9.3	8.3	7.2	8	8.2	8.1
Sulfate	mg/kg	27700	28300	20600	11600	12200	12800	19100	11300	14900
Sulfide	mg/kg	50 U	50 U	50 U	50 U					
Mean Total Organic Carbon	mg/kg	17200	21200	24000	28100	712	667 U	664 U	673 U	868

# TABLE 1 BULK (SOLID) MATERIAL SAMPLE RESULTS CCR BENEFICIAL USE ASSESSMENT AES/IPL PETERSBURG

### Notes:

Blank cells indicate constituent not analyzed.

CCR - Coal Combustion Residuals.

IUCS - IU Conversion Systems, Inc.

mg/kg - milligrams per kilogram.

U - Constituent was not detected, value is the reporting limit.

WWT FGD - Wastewater Treatment Flue Gas Desulfurization.

Sampling results for antimony, cobalt, and thallium are available for the most recent sampling round only.

TABLE 2
SUMMARY OF BULK MATERIAL ANALYTICAL RESULTS WITH COMPARISON TO CONSTRUCTION WORKER
SOIL SCREENING LEVELS - BOTTOM ASH
CCR BENEFICIAL USE ASSESSMENT
AES/IPL PETERSBURG
PETERSBURG, INDIANA

Constituent	Units	Frequency of Detection	Range of Reporting Limits for Non-Detects	Range of Detected Concentrations	Average of All Samples	Selected Soil Screening Level (a)	Max. or RL Exceeds Selected Screening Level?
Inorganic Compounds		15					
Aluminum	mg/kg	4 / 4		3930 - 5230	4598	100000	°N
Antimony	mg/kg	0 / 1	6.0 : 6.0		0.5	790	No
Arsenic	mg/kg	4 / 4		6.2 - 11	6.8	920	No
Barium	mg/kg	4 / 4		19.4 - 24.7	21.5	100000	oN No
Boron	mg/kg	4 / 4			60.1	100000	No
Cadmium	mg/kg	0 / 4	0.43 0.47		0.2	1900	No
Chromium	mg/kg	4 / 4		8,1 - 11	9.3	100000	<sup>9</sup> X
Chromium (b)	mg/kg	4 / 4		8.1 - 11	9.3	2700	No.
Cobalt	mg/kg	1 / 1		2.5 - 2.5	2.5	290	oN.
Copper	mg/kg	4 / 4		9.2 - 16.5	12	79000	No No
Iron	mg/kg	4 / 4		14100 - 23600	18325	100000	9K
Lead	mg/kg	4 / 4		1.3 - 2.9	2.4	1000	ON
Magnesium	mg/kg	4 / 4		319 - 896	481	AN	NA
Manganese	mg/kg	4/4		•	30	26000	No
Mercury	mg/kg	1 / 4	0.019 : 0.02	•	0.02	290	°N
Molybdenum	mg/kg	4 / 4		2 - 3.9	n	9800	No
Nickel	mg/kg	4 / 4		12.3 - 19.3	15.1	38000	No No
Potassium	mg/kg	4 / 4		484 - 712	809	NA NA	NA
Selenium	mg/kg	2/4	0.9 : 0.94	1.8 - 2.8	1,4	9800	No
Silver	mg/kg	0 / 4	0.43 : 0.47		0.23	9800	No
Sodium	mg/kg	4 / 4		189 - 378	244	NA	NA
Thallium	mg/kg	1 / 1		•	5.	20	No
Vanadium	mg/kg	4 / 4		16.8 - 23.2	20.4	0066	No
Zinc	mg/kg	4 / 4		15 - 19.2	17	100000	No
Other							
Acidity, Total	mg/kg	0 / 4	100 : 100		20	A'N	NA
Chloride	mg/kg	0 / 4			20	AN	NA
Fluoride	mg/kg	1 / 4	10 10	27.7 - 27.7	10.7	79000	No
Percent Moisture	%	4 / 4		9.4 - 22.8	16	AN	NA
pH at 25 Degrees C	Std. Units	4 / 4		,	7.8	AN	NA
Sulfate	mg/kg	4 / 4		i	5645	NA	NA
Sulfide	mg/kg	1/4	50 = 50	•	2324	NA	NA
Total Organic Carbon	mg/kg	8 / 8		11000 - 86300	41625	NA	NA
Mean Total Organic Carbon	mg/kg	4 / 4		12500 - 80600	41600	NA	AN

Notes:
CCR - Coal Combustion Residuals.
IDEM - Indiana Department of Environmental Management.
Max Maximum Detected Concentration.

- Reporting limit is above screening level.

- Concentration is above screening level.

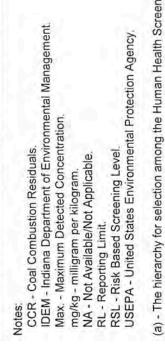
- Concentration is below screening level.

mg/kg - milligram per kilogram.
NA - Not Available/Not Applicable.
RL - Reporting Limit.
RSL - Risk Based Screening Level.
USEPA - United States Environmental Protection Agency.

<sup>(</sup>a) - The hierarchy for selection among the Human Health Screening Levels for Soil, as shown in Table 7-1, is:
1) IDEM Soil Exposure Direct Contact - Excavation.
2) May 2018 USEPA Industrial Soil RSLs HI = 1.
(b) - Chromium screened as both Total Chromium and Hexavalent Chromium to be conservative.

TABLE 3
SUMMARY OF BULK MATERIAL ANALYTICAL RESULTS WITH COMPARISON TO CONSTRUCTION WORKER
SOIL SCREENING LEVELS - FLY ASH
CCR BENEFICIAL USE ASSESSMENT
AES/IPL PETERSBURG
PETERSBURG, INDIANA

Constituent	Units	Frequency of Detection	Range of Reporting Limits for Non-Detects	Range of Detected Concentrations	Average of All Samples	Selected Soil Screening Level (a)	Max. or RL Exceeds Selected Screening Level?
Inorganic Compounds							
Aluminum	mg/kg	4 / 4		1	2008	100000	No
Antimony	mg/kg	1 / 1		1.3 - 1.3	3.3	790	9
Arsenic	mg/kg	4 / 4			104	920	oN N
Barium	mg/kg	4 / 4		53.9 - 55.9	54.8	100000	No
Boron	mg/kg	4 / 4			344	100000	No
Cadmium	mg/kg	4 / 4		0.7 - 1.6	1.2	1900	No
Chromium	mg/kg	4 / 4		•	36.0	100000	SN SN
Chromium (b)	mg/kg	4 / 4			36.0	2700	No
Cobalt	mg/kg	1/1			10.4	590	No
Copper	mg/kg	4 / 4		29.7 - 33.8	32.0	79000	No
Iron	mg/kg	4 / 4		38900 - 45600	41500	100000	No.
Lead	mg/kg	4 / 4		23.9 - 31.4	27.3	1000	No
Magnesium	mg/kg	4 / 4			627	NA	NA
Manganese	mg/kg	4 / 4		50 - 55.9	53	26000	No
Mercury	mg/kg	4 / 4		0.76 - 0.8	0.78	590	No
Molybdenum	mg/kg	4 / 4		14.2 - 30.4	24.4	9800	No
Nickel	mg/kg	4 / 4		43,4 - 47	46	38000	No
Potassium	mg/kg	4 / 4		1310 - 1540	1415	NA	NA
Selenium	mg/kg	4 / 4		8.2 - 19.6	13	9800	No
Silver	mg/kg	0 / 4	0.43 : 0.5		0.2	9800	No
Sodium	mg/kg	4 / 4		5920 - 20500	13625	NA	NA
Thallium	mg/kg	1/1		4.8 - 4.8	4.8	20	oN.
Vanadium	mg/kg	4 / 4		,	69	0066	- PN
Zinc	mg/kg	4 / 4		58.3 - 74.5	0.99	100000	No No
Other							
Acidity, Total	mg/kg	0 / 4	100 : 100		20	NA	NA
Chloride	mg/kg	4 / 4		3030 - 5070	4385	NA	NA
Fluoride	mg/kg	4 / 4		1	27.0	79000	No
Percent Moisture	%	4 / 4		0.25 - 5.1	1.6	NA	NA
pH at 25 Degrees C	Std. Units	4 / 4		9.3 - 10.3	10	NA	NA
Sulfate	mg/kg	4 / 4		11600 - 28300	22050	NA	AN
Sulfide	mg/kg	0 / 4	50 : 50		25	NA	NA
Total Organic Carbon	mg/kg	8 / 8		17100 - 28200	22638	NA	NA
Mean Total Organic Carbon	mg/kg	4 / 4			22625	NA	AA



- Concentration is below screening level.

- Concentration is above screening level.

- Reporting limit is above screening level.

<sup>(</sup>a) - The hierarchy for selection among the Human Health Screening Levels for Soil, as shown in Table 7-1, is:
1) IDEM Soil Exposure Direct Contact - Excavation.
2) May 2018 USEPA Industrial Soil RSLs HI = 1.
(b) - Chromium screened as both Total Chromium and Hexavalent Chromium to be conservative.

TABLE 4
SUMMARY OF BULK MATERIAL ANALYTICAL RESULTS WITH COMPARISON TO CONSTRUCTION WORKER
SOIL SCREENING LEVELS - GYPSUM
CCR BENEFICIAL USE ASSESSMENT
AES/IPL PETERSBURG
PETERSBURG, INDIANA

Constituent	Units	Frequency of Detection	Range of Reporting Limits for Non-Detects	Range of Detected Concentrations	Average of All Samples	Selected Soil Screening Level (a)	Max. or RL Exceeds Selected Screening Level?
Inorganic Compounds							
Aluminum	mg/kg	4 / 4		318 - 581	494	100000	No
Antimony	mg/kg	0 / 1	0.9 : 0.9		0.5	790	No
Arsenic	mg/kg	4 / 4		1.5 - 3.1	2.4	920	No
Barium	mg/kg	4 / 4		1	11	100000	No No
Boron	mg/kg	4 / 4		14.6 - 59.6	37.9	100000	°Z
Cadmium	mg/kg	0 / 4	0.42 : 0.48		0.2	1900	S.
Chromium	mg/kg	4 / 4		2.4 - 3.4	2.9	100000	So.
Chromium (b)	mg/kg	4 / 4		2.4 - 3.4	2.9	2700	°N°
Cobalt	mg/kg	0 / 1	0.9 : 0.9		0.5	590	No
Copper	mg/kg	4 / 4		1.3 - 2.5	2.0	79000	oN o
Iron	mg/kg	4 / 4		ì	925	100000	No No
Lead	mg/kg	4 / 0	0.85 : 0.96		0.46	1000	No
Magnesium	mg/kg	4 / 4		533 - 2540	1311	NA	NA
Manganese	mg/kg	4 / 4		13.2 - 25.9	19.0	26000	No
Mercury	mg/kg	4 / 4		0.022 - 0.053	0.04	590	No
Molybdenum	mg/kg	0 / 4	0.85 : 0.96		0.5	9800	No.
Nickel	mg/kg	4/4		1.1 - 1.8	1.5	38000	No
Potassium	mg/kg	4 / 4		122 - 195	170	NA	NA
Selenium	mg/kg	4 / 4		1.6 - 2.5	2.2	0086	No
Silver	mg/kg	0 / 4	0.42 : 0.48		0.23	9800	No
Sodium	mg/kg	3 / 4	46.6 : 46.6	60.2 - 196	85.7	AN	NA
Thallium	mg/kg	0 / 1	6.0 : 6.0		0.5	20	No
Vanadium	mg/kg	4 / 4		1.8 - 2.8	2.4	0066	No
Zinc	mg/kg	4 / 4		5.8 - 10.8	8.4	100000	No
Other							
Acidity, Total	mg/kg	0 / 4	y k		50	NA	NA
Chloride	mg/kg	3 / 4	99.7 : 99.7	102 - 213	137	NA	NA
Fluoride	mg/kg	4/4		31.8 - 76.9	45.3	79000	No
Percent Moisture	%	4 / 4		19.4 - 23.4	21.9	NA	NA
pH at 25 Degrees C	Std. Units	4/4		7.2 - 8.3	7.9	NA	NA
Sulfate	mg/kg	4 / 4	Same Dan	11300 - 19100	13850	AN	NA
Sulfide	mg/kg	0 / 4			25	AN	AN
Total Organic Carbon	mg/kg	4 08	•		388	AN	AN
Mean Total Organic Carbon	mg/kg	1 / 4	664 : 673	712 - 712	429	NA	ΑN

Notes:
CCR - Coal Combustion Residuals.
IDEM - Indiana Department of Environmental Management.
Max. - Maximum Detected Concentration.
mg/kg - milligram per kilogram.
NA - Not Available/Not Applicable.
RL - Reporting Limit.
RSL - Risk Based Screening Level.
USEPA - United States Environmental Protection Agency.

Reporting limit is above screening level.

Concentration is above screening level.

- Concentration is below screening level.

<sup>(</sup>a) - The hierarchy for selection among the Human Health Screening Levels for Soil, as shown in Table 7-1, is:
1) IDEM Soil Exposure Direct Contact - Excavation.
2) May 2018 USEPA Industrial Soil RSLs HI = 1.
(b) - Chromium screened as both Total Chromium and Hexavalent Chromium to be conservative.

TABLE S
SUMMARY OF BULK MATERIAL ANALYTICAL RESULTS WITH COMPARISON TO CONSTRUCTION WORKER
SOIL SCREENING LEVELS - FILTER CAKE
CCR BENEFICIAL USE ASSESSMENT
AES/IPL PETERSBURG
PETERSBURG, INDIANA

Constituent	Units	Frequency of Detection	Range of Reporting Limits for Non-Detects	Range of Detected Concentrations	Average of All Samples	Selected Soil Screening Level (a)	Max. or RL Exceeds Selected Screening Level?
Inorganic Compounds							
Aluminum	mg/kg	4 / 4			5218	100000	oN :
Antimony	mg/kg	1 / 1			1.0	06/	oN :
Arsenic	mg/kg	4 / 4		45.4 - 68.6	55.6	920	ON
Barium	mg/kg	4 / 4		•	33.3	100000	ON
Boron	mg/kg	4 / 4		284 - 350	315	100000	No
Cadmium	mg/kg	4/4		0.51 - 1,6	1,0	1900	No No
Chromium	mg/kg	4 / 4		•	22.8	100000	No
Chromium (b)	mg/kg	4 / 4		19.5 - 28.5	22.8	2700	No
Cobalt	mg/kg	1/1			4.4	290	No
Copper	mg/kg	4 / 4		18.9 - 22.4	20.4	79000	No
Iron	mg/kg	4 / 4		14000 - 23000	18275	100000	ON
Lead	mg/kg	4 / 4		10.6 - 16.7	14.0	1000	No
Magnesium	mg/kg	4 / 4		1840 - 2390	2078	NA	NA
Manganese	mg/kg	4 / 4		45.5 - 56.1	49.8	26000	Na
Mercury	mg/kg	4 / 4		0.4 - 0.54	0.47	290	No
Molybdenum	mg/kg	4 / 4		14.6 - 20.2	18.5	9800	No
Nickel	mg/kg	4 / 4		19.7 - 26.2	22.6	38000	No
Potassium	mg/kg	4 / 4			896	AN	NA
Selenium	mg/kg	4 / 4		8.5 - 10.8	10	9800	No
Silver	mg/kg	0 / 4	0.43 : 0.49		0.23	9800	No
Sodium	mg/kg	4 / 4		ı	5925	AZ	NA
Thallium	mg/kg	1 / 1		2.7 - 2.7	2.7	20	No
Vanadium	mg/kg	4 / 4		ı	43.6	0066	No
Zinc	mg/kg	4 / 4		30 - 47	39	100000	No
Other							
Acidity, Total	mg/kg	0 / 4	100 100		20	NA	NA
Chloride	mg/kg	4 / 4			2688	NA	NA
Fluoride	mg/kg	4/4		15.6 - 20.3	17.2	79000	No
Percent Moisture	%	4 / 4		20.9 - 26.4	23.9	NA VA	AN
pH at 25 Degrees C	Std. Units	4 / 4		8.8 - 9.4	9.1	AN	NA AN
Sulfate	mg/kg	4 / 4		x	17700	NA	AN
Sulfide	mg/kg	4 / 4		í	52100	NA	AN
Total Organic Carbon	mg/kg	8 / 8		6550 - 16100	12276	NA	NA
Mean Total Organic Carbon	ma/ka	4 / 4		6760 - 15700	12265	NA	NA AA



<sup>(</sup>a) - The hierarchy for selection among the Human Health Screening Levels for Soil, as shown in Table 7-1, is:

1) IDEM Soil Exposure Direct Contact - Excavation.
2) May 2018 USEPA Industrial Soil RSLs HI = 1.
(b) - Chromium screened as both Total Chromium and Hexavalent Chromium to be conservative.

SUMMARY OF BULK MATERIAL ANALYTICAL RESULTS WITH COMPARISON TO CONSTRUCTION WORKER SOIL SCREENING LEVELS - WWTP HEADWORKS CCR BENEFICIAL USE ASSESSMENT AES/IPL PETERSBURG PETERSBURG. INDIANA

Constituent	Units	Frequency of Detection	Range of Reporting Limits for Non-Detects	Range of Detected Concentrations	Average of All Samples	Selected Soil Screening Level (a)	Max. or RL Exceeds Selected Screening Level?
Inorganic Compounds							
Aluminum	mg/kg	1 / 1		708 - 708	708	100000	No
Antimony	mg/kg	0 / 1	0.86 : 0.86		0.4	790	No
Arsenic	mg/kg	1 / 1		2.8 - 2.8	2.8	920	No
Barium	mg/kg	1/1		12.3 - 12.3	12.3	100000	No
Boron	mg/kg	1/1		269 - 269	269	100000	No
Cadmium	mg/kg	0 / 1	0.43 : 0.43		0.2	1900	No
Chromium	mg/kg	1 / 1		3.9 - 3.9	9.0	100000	No
Chromium (b)	mg/kg	1/1		3.9 - 3.9	9.0	2700	No
Cobalt	mg/kg	0 / 1	0.86 : 0.86		0.4	290	No
Copper	mg/kg	1 / 1		2.6 - 2.6	2.6	79000	No
Iron	mg/kg	1/1		1430 - 1430	1430	100000	No
Lead	mg/kg	0 / 1	0.86 : 0.86		0,4	1000	No
Magnesium	mg/kg	1/1		2340 - 2340	2340	NA	AN
Manganese	mg/kg	1/1		19.4 - 19.4	19.4	26000	No
Mercury	mg/kg	1 / 1		0.088 - 0.088	0.088	590	No
Molybdenum	mg/kg	1/1		0.98 - 0.98	1.0	9800	No
Nickel	mg/kg	1 / 1		2.3 - 2.3	2.3	38000	No
Potassium	mg/kg	1/1		252 - 252	252	NA	NA
Selenium	mg/kg	1 / 1		4.4 - 4.4	4.4	0086	No
Silver	mg/kg	0 / 1	0.43 : 0.43		0.2	9800	No
Sodium	mg/kg	1/1		282 - 282	282	NA	AN
Thallium	mg/kg	0 / 1	0.86 : 0.86		0.4	20	No
Vanadium	mg/kg	1/1		3.2 - 3.2	3.2	0066	No
Zinc	mg/kg	1/1		11 - 11	1	100000	No
Other			The second second				
Acidity, Total	mg/kg	0 / 1	100 : 100		20	NA	NA
Chloride	mg/kg	1/1		1500 - 1500	1500	NA	NA
Fluoride	mg/kg	1/1		90.3 - 90.3	90.3	79000	No
Percent Moisture	%	111		26.2 - 26.2	26.2	NA	NA
pH at 25 Degrees C	Std. Units	1 / 1		8.1 - 8.1	6.1	NA	NA
Sulfate	mg/kg	1/1	1000	14900 - 14900	14900	NA	NA
Sulfide	mg/kg	0 / 1	50 : 50		25	AN	NA
Total Organic Carbon	mg/kg	2/2			898	NA	NA
Mean Total Organic Carbon	mg/kg	1/1		868 - 868	868	AN	AN



- Reporting limit is above screening level.

- Concentration is below screening level.

- Concentration is above screening level.

<sup>(</sup>a) - The hierarchy for selection among the Human Health Screening Levels for Soil, as shown in Table 7-1, is;
1) IDEM Soil Exposure Direct Contact - Excavation.
2) May 2018 USEPA Industrial Soil RSLs HI = 1.
(b) - Chromium screened as both Total Chromium and Hexavalent Chromium to be conservative.

TABLE 4
SUMMARY OF ESTIMATED LEACHING POTENTIAL WITH COMPARISON TO DRINKING WATER AND SURFACE WATER SCREENING LEVELS FILTER CAKE
CCR BENEFICIAL USE ASSESSMENT
AES/IPL PETERSBURG
PETERSBURG, INDIANA

		Solids Data	ata	Estima	Estimated Leaching Potential		Selected Screening Levels	ening Levels			Screening	ning	
Constituent	S) E	Maximum Reporting Limit	Maximum Detected Concentration	Units	Max. or RL - Leaching Potential Concentration (a)	Selected HH DW SL (b)	Selected HH SW SL - Consumption of Organism Only (c) (mg/L)	Selected Eco SW SL - Acute (d) (ma/L)	Selected Eco SW SL - Chronic (d)	Max. or RL Exceeds Selected HH DW SL?	Max. or RL Exceeds Selected HH SW SL - Consumption of Organism Only?	Max. or RL Exceeds Selected Eco SW SL - Acute?	Max. or RL Exceeds Selected Eco SW SL - Chronic?
Inorganic Compounds													
Aluminum	mg/kg		5740	mg/L	287	50	AN	AN	NA	Yes	NA	A'N	NA
Antimony	тд/кд		26.0	mg/L.	0.049	900'0	0.64	A'N	AN	Yes	No	NA	NA
Arsenic	тд/ка		9'89	mg/L	3.43	0.01	0.000175	0.34	0.15	Yes	Yes	Yes	Yes
Barium	mg/kg		36.2	mg/L	1.81	2	NA NA	NA.	NA.	No	NA	NA	NA
Boron	mg/kg		350	mg/L	17.5	4	AN	NA	AN	Yes	NA	NA.	NA
Cadmium	mg/kg		1.6	mg/L	0.08	0.005	NA	0.002	0,001	Yes	AN	Yes	Yes
Chromium	mg/kg		28.5	mg/L	1,43	0.1	NA	NA	NA	Yes	VA	NA	NA
Chromium (e)	mg/kg		28.5	mg/L	1.43	0.00035	NA	0.02	0.01	Yes	NA	Yes	Yes
Cobalt	mg/kg		4.4	mg/L	0.22	0.006	NA	NA	AN	Yes	NA	NA	AN
Copper	mg/kg		22.4	mg/L	1.12	1.3	NA	0.01	0.01	No	NA	Yes	Yes
Iron	mg/kg		23000	mg/L	1150	14	NA	NA		Yes	NA	NA	Yes
Lead	mg/kg		16.7	mg/L	0,835	0.015	NA	0.10	0.01	Yes	NA	Yes	Yes
Magnesium	mg/kg		2390	mg/L	119.5	AN	NA	NA	AN	NA	NA	AN	NA
Manganese	mg/kg		56.1	mg/L	2.81	0.43	0.1	NA	A'N	Yes	Yes	NA	NA
Mercury	mg/kg		0.54	mg/L	0,027	0.002	0.00015	0.001	0.001	Yes	Yes	Yes	Yes
Molybdenum	mg/kg		20.2	mg/L	1.01	0.1	NA	NA	Y.	Yes	AN	AN	NA
Nickel	mg/kg		26.2	mg/L	1.31	0.39	4.6	0.47	0.05	Yes	No.	Yes	Yes
Potassium	mg/kg		1060	mg/L	53	NA	NA	NA	NA	NA	NA	AN	NA
Selenium	mg/kg		10.8	mg/L	0.540	90.0	4.2	NA	0.003	Yes	No	NA	Yes
Silver	mg/kg	0.49		mg/L	0.025	0.094	AN	0.003	AN	No	NA	R	NA
Sodium	mg/kg	0	6590	mg/L	329.5	NA	NA	NA	NA NA	NA	NA	NA	NA
Thallium	mg/kg		2.7	mg/L	0.14	0.002	0.048	NA	NA VA	Yes	Yes	NA	NA
Vanadium	mg/kg		52.4	mg/L	2.62	980'0	AN	NA	NA	Yes	NA	NA	NA
Zinc	тд/кд	V	47	ъдуг	2.4	9	26	0.12	0.12	ON	No	Yes	Yes
Other				70.00									
Acidity, Lotal	mg/kg	200		T/BILL	n	NA	NA	NA	NA	AN.	AN	NA	NA
Chloride	mg/kg		3100	mg/L	155	250	NA NA	860	230	No	NA	No	No
Fluoride	mg/kg		20.3	mg/L	1.02	8.0	A'A	NA	NA	Yes	NA	NA	NA
Percent Moisture	%		26.4	%	AN AN	AN	A'A	NA	A'N	NA	AA	NA	NA
pH at 25 Degrees C	Std. Units		9.4	Std. Units	NA VA	AN	A'A	NA	6.5.9	NA	AA	AN	AN
Sulfate	шд/ка		21800	mg/L	1090	250	AN	AN	A'A	Yes	NA	Y'A	NA
Sulfide	mg/kg		76100	mg/L	3805	AN	A'A	YZ.	AN NA	AN	Y.	A'N	NA
Total Organic Carbon	mg/kg	1	16100	mg/L	A'A	NA	NA NA	NA.	NA	NA	AN	A'N	NA
Mean Total Organic Carbon	та/ка		15700	Wg/L	NA	NA	Y.	NA	NA	NA	AA	AN	4Z

	n Residuals.	rion Concentration.			
Notes:	CCR - Coal Combustion Residuals	CCC - Continuous Criterion Concentration	DW - Drinking Water.	Eco - Ecological.	

IDEM - Indiana Department of Environmental Man HH - Human Health, HLSC - Human Life-Cycle Safe Concentration. Max - Maximum Detected Concentration. mg/L - milligram per liter.

MPL - Maximum Permissible Level.
NA - Not Available/Not Applicable.
NRWQC - National Recommended Water Quality Criteria.
RL - Reporting Limit.
RSL - Risk Based Screening Level.
SL - Screening Level.
SW - Surface Water.
USEPA - United States Environmental Protection Agency.

(a) - Leaching potential value is estimated as the maximum detected concentration or reporting limit for solids divided by 20.
(b) - The hierarchy for selection among the Human Health Screening Levels for Drinking Water, as shown in Table 7-2, is:

1) IDEM Groundwater Tap Residential.
1) IDEM Groundwater Tap Residential.
1) IDEM ARSL. - Tap Water.
(c) - The hierarchy for selection among the Human Health Screening Levels for Surface Water - Consumption of Organism Only (current).
1) IDEM GCC HLSC. - Consumption of Organism Only (current).
3) USEPA NRWOC. - Consumption of Organism Only.
(d) - The Infrarchy for the selection of Cological screening levels, as shown in Table 7-3, is:

1) IDEM Aquatic Life Criterion (proposed).
1) IDEM Aquatic Life Criterion (proposed).
2) IDEM Aquatic Life Criterion (current).
3) USEPA NRWOC. Aquatic Life Criteria - Frestwater.
(e) - Chromium screened as both Total Chromium and Hexavalent Chromium to be conservative.

mption of Organism Only, as shown in Table 7-2, is;

- Concentration is below screening level: - Concentration is above screening level

TABLE S.
SUMMARY OF ESTIMATED LEACHING POTENTIAL WITH COMPARISON TO DRINKING WATER AND SURFACE WATER SCREENING LEVELS WW.TP HEADWORKS
CCR BENEFICIAL USE ASSESSMENT
AES/IPL PETERSBURG
PETERSBURG, INDIANA

Max. or RL Exceeds Selected Eco SW SL -Chronic? Max. or RL Exceeds Selected Eco SW SL -Acute? Max. or RL Exceeds Selected HH SW SL -Consumption of Organism Only? Max. or RL Exceeds Selected HH DW SL? Selected Eco SW SL Chronic Selected HH DW SL Max. or RL -Leaching Potential Concentratio 0.86 0.43

Mean Total Organic Carbon mg/kg	mg/kg
Notes:	
CCR - Coal Combustion Residuals.	iduals.
CCC - Continuous Criterion (	Concentration.
DW - Drinking Water,	
Eco - Ecological.	
IDEM - Indiana Department of Environmental Manage	of Environmental Manage
HH - Human Health.	
HLSC - Human Life-Cycle Safe Concentration.	afe Concentration.
Max - Maximum Detected Concentration	oncentration,
mg/L - milligram per liter.	

(a) - Leaching potential value is estimated as the maximum detected concentration or reporting limit for solids divided by 20.
(b) - The hierarchy for selection among the Human Health Screening Levels for Drinking Water, as shown in Table 7-2, is;
(c) - The hierarchy for selection among the Human Health Screening Levels for Surface Water - Consumption of Organism Only (proposed).
(d) - The hierarchy for selection among the Human Health Screening Levels for Surface Water - Consumption of Organism Only (current).
(e) - The hierarchy for selection among the Human Health Screening Levels for Surface Water - Consumption of Organism Only (current).
(a) USEPA NRWIOC - Consumption of Organism Only (current).
(d) - The hierarchy for the selection of ecological screening levels, as shown in Table 7-3, is;
(d) - The hierarchy for the selection (current).
(e) - Die Maquatic Life Criterion (current).
(e) - Die Maquatic Life Criterion (current).
(e) - Chromium screened as both Total Chromium and Hexavalent Chromium to be conservative:

Haley & Aldrich, Inc. 2018-0927\_HAI Solids Conversion Leachate Screens\_Rev1.xlsx

# **APPENDIX F-2**

Leachate Extraction Screening Analysis



TABLE 1
LEACHATE SAMPLE RESULTS
CCR BENEFICIAL USE ASSESSMENT
AES/IPL PETERSBURG
PETERSBURG, INDIANA

Constituent	Units	Bottom Ash 18 hr 01/09/2018 50188189007	Bottom Ash 18 hr 10/03/2017 50181275007	Bottom Ash 18 hr 04/04/2018 50193927007	Bottom Ash 18 hr 07/11/2018 50201164003	Bottom Ash 30 Day 01/09/2018 50188189008	Bottom Ash 30 Day 04/04/2018 50193927008	Bottom Ash 30 Day 07/11/2018 50201164004	Bottom Ash 30 day 10/03/2017 50181275008
Inorganic Compounds									
Aluminum	mg/L	0.2 U	0.42	0.42	0.77	0.2 U	2.2	0.31	0.31
Antimony	mg/L				0.006 U			0.008 U	3337
Arsenic	mg/L	0.01 U	0.025	0.01 U	0.016	0.01 U	0.013	0.01 U	0.01 U
Barium	mg/L	0.01	0.023	0.027	0.01 U	0.025	0.038	0.01 U	0.024
Boron	mg/L	0.38	0.45	1.5	0.1 U	0.66	1.7	0.22	0.77
Cadmium	mg/L	0.002 U	0.002 U	0.002 U	0.002 U				
Chromium	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Cobalt	mg/L				0.01 U			0.01 U	
Copper	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Iron	mg/L	0.29	0.1 U	0.1 U	0.12	0.41	3.6	0.33	0.65
Lead	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Magnesium	mg/L	1.3	2.5	4.2	1 U	2.8	6.9	1.2	4.4
Manganese	mg/L	0.012	0.01 U	0.048	0.01 U	0.053	0.021	0.012	0.034
Mercury	mg/L	0.002 U	0.002 U	0.002 U	0.002 U				
Molybdenum	mg/L	0.01 U	0.01 U	0.03	0.01 U	0.022	0.042	0.016	0.013
Nickel	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.021	0.01 U	0.01 U	0.01 U
Potassium	mg/L	1 U	1 U	1 U	1 U	1.9	2.9	2.4	2.5
Selenium	mg/L	0.01 U	0.01 U	0.01	0.01 U	0.01 U	0.017	0.01 U	0.01 U
Silver	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Sodium	mg/L	1 U	1.1	10.4	1.3	1 U	11.7	2.1	2.2
Thallium	mg/L				0.01 U			0.01 U	
Vanadium	mg/L	0.01 U	0,011	0.01 U	0.01 U				
Zinc	mg/L	0.02 U	0.02 U	0.02 U	0.02 U				
Other	6.50			1 0 T				A 30 4.5 A 4	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Acidity, Total	mg/L	10 U	10 U	10 U	10 U				
Alkalinity, Total as CaCO3	mg/L	8.6	11.6	10.1	15.8	21.2	22.7	14.1	25.7
Chloride	mg/L	1 U	1.8	3.4	1 U	1 U	4.1	1 U	2.2
Fluoride	mg/L	0.53	0.32	3.3	0.1 U	4	4	0.1 U	0.4
pH at 25 Degrees C	Std. Units	7.6	8.4	7.9	9	7.1	7.7	7.2	7.8
Sulfate	mg/L	46.1	289	1810	20.1	75.9	1830	39.6	181
Sulfide	mg/L	0.1 U	0.1 U	0.1 U	0.1 U				
Total Dissolved Solids	mg/L	88	435	2210	24	144	2270	70	270
Total Organic Carbon	mg/L	10	1 U	1 U	1 U	10	1 U	10	1 U
Initial pH	Std. Units	6.9		17.7		1 2 1 I			
Final pH	Std. Units	6.9	7.93	7.21	8.52	7.41	8.17	7.08	7.57

TABLE 1
LEACHATE SAMPLE RESULTS
CCR BENEFICIAL USE ASSESSMENT
AES/IPL PETERSBURG
PETERSBURG, INDIANA

Constituent	Units	Filter Cake (IUCS) 18 hr 07/11/2018 50201164011	Filter Cake (IUCS) 30 Day 07/11/2018 50201164012	Filter Cake 18 hr 01/09/2018 50188189015	Filter Cake 18 hr 10/03/2017 50181275015	Filter Cake 18 hr 04/04/2018 50193927015	Filter Cake 30 Day 01/09/2018 50188189016	Filter Cake 30 Day 04/04/2018 50193927016	Filter Cake 30 day 10/03/2017 50181275016
Inorganic Compounds				00,100,000,10	90101210010	00100027010	00100100010	50155527010	30101273010
Aluminum	mg/L	0.38	0.48	0.48	0.49	0.43	0.56	0.69	0.7
Antimony	mg/L	0.03	0.032		0.10	0.10	5.00	0.03	0.7
Arsenic	mg/L	0.21	0.27	0.29	0.14	0.29	0.42	0.39	0.29
Barium	mg/L	0.058	0.079	0.054	0.078	0.071	0.069	0.11	0.1
Boron	mg/L	13.9	14.5	11	10.9	11.7	11.5	12.6	11.7
Cadmium	mg/L	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Chromium	mg/L	0.01 U	0.01 U	0.011	0.01 U	0.015	0.01 U	0.014	0.002 U
Cobalt	mg/L	0.01 U	0.01 U	0.011	0.010	0.010	0.010	0.014	0.010
Copper	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Iron	mg/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.17
Lead	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Magnesium	mg/L	13.2	15.2	5.7	8	8.9	12.8	9.8	9
Manganese	mg/L	0.01 U	0.011	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011
Mercury	mg/L	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Molybdenum	mg/L	0.85	0.85	0.87	0.6	0.95	0.73	0.96	0.63
Nickel	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.03 0.01 U
Potassium	mg/L	7	7.1	7.7	8.8	6.9	6.9	7.4	9.4
Selenium	mg/L	0.34	0.3	0.3	0.23	0.29	0.27	0.29	0.2
Silver	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Sodium	mg/L	277	256	317	269	282	272	285	277
Thallium	mg/L	0.01 U	0.01 U	311	203	202	212	203	211
Vanadium	mg/L	0.13	0.17	0.13	0.049	0.13	0.17	0.23	0.12
Zinc	mg/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Other		2.02.0	0.02.0	0.02 0	0.02 0	0.02 0	0.02 0	0.02 0	0.02 0
Acidity, Total	mg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Alkalinity, Total as CaCO3	mg/L	74.2	63.7	72.5	63.6	87	77.5	81.3	67
Chloride	mg/L	160	141	121	137	133	120	135	133
Fluoride	mg/L	0.9	1.2	1.3	1.5	1.2	1.8	1.7	2.3
pH at 25 Degrees C	Std. Units	9.1	8.9	9.4	9.1	9.2	9.1	9.2	9.1
Sulfate	mg/L	870	868	1650	1690	1500	1540	1810	2000
Sulfide	mg/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Total Dissolved Solids	mg/L	2320	2870	2570	3000	1930	2840	2720	3070
Total Organic Carbon	mg/L	1 U	10	1.3	1 U	1.3	1 U	1 U	1 U
Initial pH	Std. Units			9.39		1.5	1.0	10	1.0
Final pH	Std. Units	8.67	8.68	9.39	9.02	9.25	9.14	9.18	9

TABLE 1
LEACHATE SAMPLE RESULTS
CCR BENEFICIAL USE ASSESSMENT
AES/IPL PETERSBURG
PETERSBURG, INDIANA

Constituent	Units	Fly Ash 18 hr 01/09/2018 50188189019	Fly Ash 18 hr 10/03/2017 50181275019	Fly Ash 18 hr 04/04/2018 50193927019	Fly Ash 18 hr 07/11/2018 50201164015	Fly Ash 30 Day 01/09/2018 50188189020	Fly Ash 30 Day 04/04/2018 50193927020	Fly Ash 30 Day 07/11/2018 50201164016	Fly Ash 30 day 10/03/2017 50181275020
Inorganic Compounds							1 - 7 - 1		
Aluminum	mg/L	5	5.8	3.3	1.1	5.5	8.9	1	6.3
Antimony	mg/L		10.33	A	0.021		00.0	0.035	400
Arsenic	mg/L	1.6	1.9	1.6	0.49	2	2.1	0.7	2.2
Barium	mg/L	0.01 U	0.012	0.01 U	0.02	0.016	0.036	0.035	0.014
Boron	mg/L	11.3	9.8	8.5	24.1	12.7	8.6	24	11.3
Cadmium	mg/L	0.01 U	0.002 U	0.0046	0.002 U	0.01 U	0.0024	0.0021	0.002 U
Chromium	mg/L	0.021	0.025	0.023	0.01 U	0.031	0.034	0.012	0.034
Cobalt	mg/L				0.01 U			0.01 U	
Copper	mg/L	0.01 U	0.01 U	0.01 U	0.015	0.01 U	0.011	0.01 U	0.01 U
Iron	mg/L	0.1 U	0.1	0.1 U	0.1 U	0.1 U	3.6	0.1 U	0.1 U
Lead	mg/L	0.01 U	0.023	0.01 U	0.01 U				
Magnesium	mg/L	1	1 U	1 U	25.1	1 U	1.1	22.7	1 U
Manganese	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Mercury	mg/L	0.002 U	0.002 U	0.002 U	0.002 U				
Molybdenum	mg/L	1.4	1.3	1	0.62	1.4	0.99	0.78	1.4
Nickel	mg/L	0.02	0.02	0.014	0.026	0.02	0.029	0.03	0.022
Potassium	mg/L	13.3	12.2	13.5	14.8	14.9	14.4	15.5	13
Selenium	mg/L	0.62	0.64	0.51	0.4	0.65	0.49	0.42	0.69
Silver	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Sodium	mg/L	990	949	724	618	949	627	568	955
Thallium	mg/L		9.0	(4.7	0.01 U	0.10	OL.	0.01 U	555
Vanadium	mg/L	0.38	0.42	0.29	0.12	0.59	0.46	0.22	0.62
Zinc	mg/L	0.02 U	0.048	0.02 U	0.02 U				
Other	11.9.2	0.02	0.02 0	0.02.0	0.02.0	0.02 0	0.040	0.02.0	0.02 0
Acidity, Total	mg/L	10 U	10 U	10 U	10 U				
Alkalinity, Total as CaCO3	mg/L	246	290	115	86.3	216	120	91.2	247
Chloride	mg/L	265	254	176	309	277	155	293	254
Fluoride	mg/L	1.7	1.7	1.1	1.3	2	0.97	1.6	1.7
pH at 25 Degrees C	Std. Units	10.5	10.6	9.8	9.2	10.4	9.8	9.2	10.6
Sulfate	mg/L	1420	1630	1640	826	1410	1450	719	1610
Sulfide	mg/L	0.1 U	0.1 U	0.1 U	0.1 U				
Total Dissolved Solids	mg/L	3140	3020	2120	2290	3020	1870	2150	3060
Total Organic Carbon	mg/L	1.3	3.5	2.7	1.5	1	2.2	1.1	3.4
Initial pH	Std. Units	10.44	3,3	2.1	1.5		2.2	151	3.4
Final pH	Std. Units	10.44	10.67	9.89	8.84	10.54	9.91	9	10.66

TABLE 1
LEACHATE SAMPLE RESULTS
CCR BENEFICIAL USE ASSESSMENT
AES/IPL PETERSBURG
PETERSBURG, INDIANA

Constituent	Units	Gypsum 18 hr 01/09/2018 50188189011	Gypsum 18 hr 10/03/2017 50181275011	Gypsum 18 hr 04/04/2018 50193927011	Gypsum 18 hr 07/11/2018 50201164007	Gypsum 30 Day 01/09/2018 50188189012	Gypsum 30 Day 04/04/2018 50193927012	Gypsum 30 Day 07/11/2018 50201164008	Gypsum 30 day 10/03/2017 50181275012
Inorganic Compounds	17.50								
Aluminum	mg/L	0.33	0.26	0.41	0.42	0.2 U	0.2 U	0.24	0.2 U
Antimony	mg/L			L PA	0.008 U			0.008 U	
Arsenic	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Barium	mg/L	0.026	0.025	0.027	0.024	0.024	0.023	0.022	0.021
Boron	mg/L	1.7	0.66	2.8	1.1	2.2	2.8	1.3	0.76
Cadmium	mg/L	0.002 U	0.002 U	0.002 U	0.002 U				
Chromium	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Cobalt	mg/L				0.01 U			0.01 U	
Copper	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Iron	mg/L	0.1 U	0.16	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Lead	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Magnesium	mg/L	11.9	3.9	16	8.2	16	16.5	9.6	5.1
Manganese	mg/L	0.029	0.01 U	0.13	0.03	0.01 U	0.11	0.01 U	0.01 U
Mercury	mg/L	0.002 U	0.002 U	0.002 U	0.002 U				
Molybdenum	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.012	0.01 U	0.01 U	0.01 U
Nickel	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Potassium	mg/L	1 U	10	1 U	1 U	1.1	1 U	1 U	1 U
Selenium	mg/L	0.015	0.015	0.012	0.017	0.02	0.012	0.022	0.019
Silver	mg/L	0.01 U	0.01 U	0.01 U	0.01 U				
Sodium	mg/L	5.6	1.6	2.4	3	7.6	2.4	3.2	2.9
Thallium	mg/L	0.0	1.0		0.01 U	7.0	2.4	0.01 U	2.5
Vanadium	mg/L	0.01 U	0,01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Zinc	mg/L	0.02 U	0.02 U	0.01 U	0.02 U				
Other	mg/L	0.02 0	0.02.0	0.02 0	0.02.0	0,02 0	0.02 0	0.02 0	0.02 0
Acidity, Total	mg/L	10 U	10 U	10 U	10 U				
Alkalinity, Total as CaCO3	mg/L	15.3	7.2	10.3	7.8	16.8	13.6	9.6	10.2
Chloride	mg/L	6.1	2.9	12.4	5	7.2	11.4	5.1	3.1
Fluoride	mg/L	0.58	3.6	5.5	3.2	5	6.4	4.2	4.3
pH at 25 Degrees C	Std. Units	8	7.9	7.8	8.1	7.5	6.5	8	8
Sulfate	mg/L	1520	1530	1800	905	1740	1840	751	
Sulfide	mg/L	0.1 U	0.1 U		1550				
Total Dissolved Solids	mg/L	2280	2170	2170	2260	2320	2220	0.1 U	0.1 U
Total Organic Carbon	mg/L	1 U	1 U	1 U	1 U		The second secon	2220	2210
Initial pH	Std. Units	7.32	1.0	10	10	1 U	1.0	10	1 U
Final pH	Std. Units	7.32	7.18	7.41	7,54	7.50	0.40	55.10	7.10
mai pri	old. Units	1.32	1.10	1.41	7,54	7.58	8.13	7.1	7.16

TABLE 1
LEACHATE SAMPLE RESULTS
CCR BENEFICIAL USE ASSESSMENT
AES/IPL PETERSBURG
PETERSBURG, INDIANA

		WWTP	I WWTP
	16	Headworks	Headworks
	11 11	18 hr	
			30 Day
	Maria Ma	07/11/2018	07/11/2018
Constituent	Units	50201164019	50201164020
Inorganic Compounds		20.00	
Aluminum	mg/L	0.62	0.2 U
Antimony	mg/L	0.008 U	0.008 U
Arsenic	mg/L	0.01 U	0.01 U
Barium	mg/L	0.029	0.024
Boron	mg/L	17.5	13.7
Cadmium	mg/L	0.002 U	0.002 U
Chromium	mg/L	0.01 U	0.01 U
Cobalt	mg/L	0.01 U	0.01 U
Copper	mg/L	0.01 U	0.01 U
Iron	mg/L	0.1 U	0.1 U
Lead	mg/L	0.01 U	0.01 U
Magnesium	mg/L	124	95.8
Manganese	mg/L	0.5	0.01 U
Mercury	mg/L	0.002 U	0.002 U
Molybdenum	mg/L	0.016	0.013
Nickel	mg/L	0.01 U	0.01 U
Potassium	mg/L	2.9	2.4
Selenium	mg/L	0.061	0.056
Silver	mg/L	0.01 U	0.01 U
Sodium	mg/L	27.9	21.6
Thallium	mg/L	0.01 U	0.01 U
Vanadium	mg/L	0.01 U	0.01 U
Zinc	mg/L	0.02 U	0.01 U
Other	mg/L	0.02 0	0,02.0
Acidity, Total	mg/L	10 U	17
Alkalinity, Total as CaCO3	mg/L	21.3	23.9
Chloride	mg/L	89	69.9
Fluoride	mg/L	7.8	7.8
pH at 25 Degrees C	Std. Units	8.2	7.5
Sulfate	mg/L	1040	868
Sulfide	mg/L	0.1 U	0.1 U
Total Dissolved Solids	mg/L	2940	2800
Total Organic Carbon		1 U	1 U
Initial pH	mg/L	1.0	10
	Std. Units	0.04	7.70
Final pH	Std. Units	8.04	7.73

# TABLE 1 LEACHATE SAMPLE RESULTS CCR BENEFICIAL USE ASSESSMENT **AES/IPL PETERSBURG**

### Notes:

Blank cells indicate constituent not analyzed.

CCR - Coal Combustion Residuals.

IUCS - IU Conversion Systems, Inc.

mg/L - milligrams per liter.

U - Constituent was not detected, value is the reporting limit. WWT FGD - Wastewater Treatment Flue Gas Desulfurization.

Sampling results for antimony, cobalt, and thallium are available for the most recent sampling round only.

TABLE 2 SUMMARY OF LEACHATE ANALYTICAL RESULTS WITH COMPARISON TO DRINKING WATER AND SURFACE WATER SCREENING LEVELS -**BOTTOM ASH - 18 HOUR** CCR BENEFICIAL USE ASSESSMENT AES/IPL PETERSBURG PETERSBURG, INDIANA

Constituent	Units	Frequency of Detection	Range of Reporti Limits for Non- Detects	Range of Detected	Average I of All Samples	Selected HH DW SL (a) (mg/L)	Selected HH SW SL - Consumption of Organism Only (b) (mg/L)	Selected Eco SW SL - Acute (c) (mg/L)	Selected Eco SW SL - Chronic (c) (mg/L)	Max. or RL Exceeds Selected HH DW SL?	Max. or RL Exceeds Selected HH SW SL - Consumption of Organism Only?	Max. or RL Exceeds Selected Eco SW SL - Acute?	Max. or RL Exceeds Selected Eco SW SL - Chronic?
Inorganic Compounds					1			3-7	(5/				
Aluminum	mg/L	3 / 4	0.2 : 0.2	0.42 - 0.77	0.43	20	NA.	NA NA	NA	No	NA	NA	NA
Antimony	mg/L	0 / 1	0.006 0.006		0.003	0.006	0.64	NA NA	NA.	No	No	NA	NA.
Arsenic	mg/L	2 / 4	0.01 : 0.01	0.016 - 0.025	0.013	0.01	0.000175	0.34	0.15	Yes	Yes	No	No
Barium	mg/L	3 / 4	0.01 0.01	0.01 - 0.027	0.016	2	NA.	NA	NA	No	NA	NA.	NA NA
Boron	mg/L	3 / 4	0.1 : 0.1	0.38 - 1.5	0.60	4	NA.	NA NA	NA	No	NA	NA	NA NA
Cadmium	mg/L	0 / 4	0.002 0.002		0.001	0.005	NA.	0.002	0.001	No	NA	RL	RL
Chromium	mg/L	0 / 4	0.01 : 0.01		0.005	0.1	NA	NA NA	NA	No	NA	NA	NA NA
Chromium (d)	mg/L	0 / 4	0.01 : 0.01		0.005	0.00035	NA NA	0.02	0.01	RL	NA	No	No
Cobalt	mg/L	0 / 1	0.01 0.01		0.005	0.006	NA.	NA	NA	RL	NA.	NA NA	NA NA
Copper	mg/L	0 / 4	0.01 : 0.01		0.005	1.3	NA.	0.01	0.01	No	NA NA	No	RL
Iron	mg/L	2 / 4	0.1 : 0.1	0.12 - 0.29	0.13	14	NA	NA	1	No	NA	NA NA	No
Lead	mg/L	0 / 4	0.01 : 0.01		0.005	0.015	NA.	0.10	0.01	No	NA NA	No	RL
Magnesium	mg/L	3 / 4	1 1	1.3 - 4.2	2.1	NA	NA.	NA NA	NA	NA NA	NA NA	NA NA	
Manganese	mg/L	2 / 4	0.01 : 0.01	0.012 - 0.048	0.018	0.43	0.1	NA NA	NA.	No	No	NA NA	NA NA
Mercury	mg/L	0 / 4	0.002 0.002		0.001	0.002	0.00015	0.001	0.001	No	RL	RL	NA .
Molybdenum	mg/L	1/4	0.01 0.01	0.03 - 0.03	0.01	0.1	NA NA	NA NA	NA.	No	NA NA		RL
Nickel	mg/L	0 / 4	0.01 0.01	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.005	0.39	4,6	0.47	0.05	No	No	NA	NA
Potassium	mg/L	0 / 4	1 1		0.5	NA	NA.	NA.	NA	NA NA	NA NA	No	No
Selenium	mg/L	1/4	0.01 0.01	0.01 - 0.01	0.006	0.05	4.2	NA NA	0.003	Na		NA	NA
Silver	mg/L	0 / 4	0.01 : 0.01	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	0.005	0.094	NA NA	0.003	NA NA		No	NA .	Yes
Sodium	mg/L	3 / 4	1 1	1.1 - 10.4	3.3	NA.	NA.	NA NA	NA	No NA	NA	RL	NA
Thallium	mg/L	0 / 1	0.01 0.01	111	0.005	0.002	0.048	NA NA	4,36.1		NA	NA	NA.
Vanadium	mg/L	0 / 4	0.01   0.01		0.005	0.086	NA	NA NA	NA NA	RL	No	NA	NA.
Zinc	mg/L	0 / 4	0.02 : 0.02		0.01	6	26	0.12	0.00	No	NA .	NA	NA.
Other	N. G.		0.02 , 0.02	W	0.01	U.	20	0.12	0.12	No	No	No	No.
Acidity, Total	mg/L	0 / 4	10 : 10	I ha so	5.0	NA	NA	NA NA	NA	100	100		100
Alkalinity, Total as CaCO3	mg/L	4 / 4	19 . 10	8.6 - 15.8	11.5	NA	NA NA	NA NA	NA	NA NA	NA	NA	NA
Chloride	mg/L	2/4	13.1	1.8 - 3.4	1.6	250	NA NA	860	NA	NA	NA	NA	NA
Fluoride	mg/L	3 / 4	0.1 : 0.1	0.32 - 3.3	1.1	0.8	NA NA		230	No	NA	No	No
pH at 25 Degrees C	Std. Units	4 / 4	0.1 . 0.1	7.6 - 9	8.2	NA NA	NA NA	NA.	NA	Yes	NA	NA	NA NA
Sulfate	mg/L	4/4		20.1 - 1810	541	250		NA.	6.5-9	NA	NA	NA	No
Sulfide	mg/L	0 / 4	0.1 : 0.1	20.1 - 1010	0.05	NA NA	NA .	NA NA	NA	Yes	NA	NA	NA NA
Total Dissolved Solids	mg/L	4 / 4	W.1 . U.1	24 - 2210	689	500	NA	NA	NA.	NA	NA	NA	NA
Total Organic Carbon	mg/L	0 / 4	1 : 1	24 - 2210	0.5		NA	NA:	NA	Yes	NA	NA	NA .
Initial pH	Std. Units.	1/1	4 3 3 3 3 5	6.9 - 6.9		NA	NA	NA	NA	NA	NA NA	NA	NA
Final pH	Std. Units	4/4			6.9	NA	NA	NA	6.5-9	NA	NA	NA	No
r mai pri	otu. Units	4 ( 4		6.9 - 8.52	7.6	NA	NA NA	NA NA	6.5-9	NA NA	NA	NA.	No

N	of	es:	
	٠.		

CCC HLSC - Continuous Criterion Concentration. Human Life-Cycle Safe Concentration.

DW - Drinking Water.

Eco - Ecological.
IDEM - Indiana Department of Environmental Management.

HH - Human Health.

Max. - Maximum Detected Concentration.

MPL - Maximum Permissible Level, NA - Not Available/Not Applicable.

NRWQC - National Recommended Water Quality Criteria.

RL - Reporting Limit.

RSL - Risk Based Screening Level. SL - Screening Level

SW - Surface Water. USEPA - United States Environmental Protection Agency.

mg/L - milligram per liter. (a) - The hierarchy for selection among the Human Health Screening Levels for Drinking Water, as shown in Table 7-2, is:
 1) IDEM Groundwater Tap Residential.
 2) IDEM MPL.

3) USEPA RSL - Tap Water.

3) USEPA RSL - Tap Water.

(b) - The hierarchy for selection among the Human Health Screening Levels for Surface Water - Consumption of Organism Only, as shown in Table 7-2, is:
1) IDEM CCC HLSC - Consumption of Organism Only (proposed).
2) IDEM CCC HLSC - Consumption of Organism Only (current).
3) USEPA NRWQC - Consumption of Organism Only.

(c) - The hierarchy for the selection of ecological screening levels, as shown in Table 7-3, is:

1) IDEM Aquatic Life Criterion (proposed).
2) IDEM Aquatic Life Criterion (current).
3) USEPA NRWQC. Aquatic Life Criteria - Freshwater.
(d) - Chromium screened as both Total Chromium and Hexavalent Chromium to be conservative.

- Concentration is below screening level. - Concentration is above screening level. - Reporting limit is above screening level.

TABLE 3 SUMMARY OF LEACHATE ANALYTICAL RESULTS WITH COMPARISON TO DRINKING WATER AND SURFACE WATER SCREENING LEVELS -BOTTOM ASH - 30 DAY CCR BENEFICIAL USE ASSESSMENT AES/IPL PETERSBURG PETERSBURG, INDIANA

Constituent	Units	Frequency of Detection	Range of Reporting Limits for Non- Detects	Range of Detected Concentrations	Average of All Samples	Selected HH DW SL (a) (mg/L)	Serected HH SW SL - Consumption of Organism Only (b) (mg/L)	Selected Eco SW SL - Acute (c) (mg/L)	Selected Eco SW SL - Chronic (c) (mg/L)	Max. or RL Exceeds Selected HH DW SL?	Max. or RL Exceeds Selected HH SW SL - Consumption of Organism Only?	Max. or RL Exceeds Selected Eco SW SL - Acute?	Max. or RL Exceeds Selected Eco SW SL - Chronic?
Inorganic Compounds			10 To 10 To 10	1 2 m - 1 m - 1	0 3 2 1								
Aluminum	mg/L	3 / 4	0.2 ; 0.2	0.31 - 2.2	0.73	20	NA	NA.	NA	No	NA	NA	NA.
Antimony	mg/L	0 / 1	0.008 ; 0.008		0.004	0.006	0.64	NA.	NA	RL	No	NA.	NA.
Arsenic	mg/L	1 / 4	0.01 : 0.01	0.013 - 0.013	0.007	0.01	0.000175	0.34	0.15	Yes	Yes	No	No
Barium	mg/L	3 / 4	0.01 : 0.01	0.024 - 0.038	0.023	2	NA.	NA	NA	No	NA	NA.	NA
Boron	mg/L	4 / 4		0.22 - 1.7	0.84	4	NA.	NA	NA	No	NA	NA	NA
Cadmium	mg/L	0 / 4	0.002 : 0.002	100	0.001	0.005	NA.	0.002	0.001	No	NA	RL	RL
Chromium	mg/L	0 / 4	0.01 : 0.01	A A TV WIT	0.005	0.1	NA	NA	NA	No	NA	NA.	NA
Chromium (d)	mg/L	Carlo and the	0.01 : 0.01	11 to 2 to	0.005	0.00035	NA	0.02	0.01	RL	NA NA	No	No
Cobalt	mg/L	0 / 1	0.01 : 0.01		0.005	0.006	NA NA	NA	NA.	RL	NA.	NA.	NA NA
Copper	mg/L	0 / 4	0.01 : 0.01		0.005	1.3	NA	0.01	0.01	No	NA.	No	RL
Iron	mg/L	4 / 4		0.33 - 3.6	1.2	14	NA	NA	1	No	NA.	NA NA	Yes
Lead	mg/L	0 / 4	0.01 : 0.01	Acres Control	0.005	0.015	NA.	0.10	0.01	No	NA	No	RL
Magnesium	mg/L	4 / 4		1.2 - 6.9	3.8	NA	NA.	NA	NA.	NA	NA NA	NA NA	NA NA
Manganese	mg/L	4 / 4		0.012 - 0.053	0.030	0.43	0.1	NA	NA.	No	No.	NA.	NA NA
Mercury	mg/L	0 / 4	0.002 : 0.002		0.001	0.002	0.00015	0.001	0.001	No	RL	RL	RL
Molybdenum	mg/L	4 / 4		0.013 - 0.042	0.023	0.1	NA	NA	NA.	No	NA.	NA NA	
Nickel	mg/L	1/4	0.01 : 0.01	0.021 - 0.021	0.009	0.39	4.6	0.47	0.05	No	No		NA NA
Potassium	mg/L	4 / 4	120,100	1.9 - 2.9	2.4	NA	NA NA	NA	NA NA	NA.	NA NA	No	No
Selenium	mg/L	1 / 4	0.01 : 0.01	0.017 - 0.017	0.008	0.05	4.2	NA	0.003	No	No.	NA	NA NA
Silver	mg/L	0 / 4	0.01 0.01	2001	0.005	0.094	NA NA	0.003	NA	No		NA NA	Yes
Sodium	mg/L	3 / 4	1 1	2.1 - 11.7	4.1	NA	NA NA	NA	NA NA	NA NA	NA NA	RL	NA
Thallium	mg/L	0 / 1	0.01 0.01	20 4 300	0.005	0.002	0.048	NA	NA NA	RL		NA	NA
Vanadium	mg/L	1 / 4	0.01 0.01	0.011 - 0.011	0.0065	0.086	NA.	NA	NA NA	No	No.	NA	NA.
Zinc	mg/L	0 / 4	0.02 0.02	2001	0.01	6	26	0.12	0.12	No No	NA	NA	NA
Other	100		200		3.3		20	0,12	0.12	NO	No	No	No
Acidity, Total	mg/L	0 / 4	10 10		5.0	NA	NA.	NA	NA	NA.		1444	141
Alkalinity, Total as CaCO3	mg/L	4 / 4	100 St. 100 St	14.1 - 25.7	20.9	NA	NA NA	NA	NA NA	NA NA	NA	NA	NA
Chloride	mg/L	2 / 4	1 1	22 - 41	1.8	250	NA NA	860	230		NA	NA	NA
Fluoride	mg/L	3 / 4	0.1 0.1	0.4 - 4	2.1	0.8	NA NA	NA NA		No	NA	No	No
pH at 25 Degrees C	Std. Units	4 / 4		7.1 - 7.8	7.5	NA.	NA NA	NA	NA 6 5 0	Yes	NA NA	NA	NA
Sulfate	mg/L	4/4		39.6 - 1830	532	250	NA NA	NA NA	6.5-9	NA	NA	NA	No
Sulfide	mg/L	0 / 4	0.1 0.1	05,0 2 1050	0.05	NA.	NA NA		NA.	Yes	NA	NA	NA
Total Dissolved Solids	mg/L	4 / 4	Old Will	70 - 2270	689	500	NA NA	NA NA	NA.	NA	NA	NA	NA
Total Organic Carbon	mg/L	0 / 4	4 1 4	10 - 22/0	0.5	NA NA	NA NA		NA.	Yes	NA	NA	NA
Final pH	Std. Units	4/4	The State of	7.08 - 8.17	7.56	NA NA	NA NA	NA NA	NA 6.5-9	NA NA	NA NA	NA NA	NA Na

CCC HLSC - Continuous Criterion Concentration. Human Life-Cycle Safe Concentration.

DW - Drinking Water.

Eco - Ecological. IDEM - Indiana Department of Environmental Management.

HH - Human Health.

Max. - Maximum Detected Concentration.

mg/L - milligram per liter.

MPL - Maximum Permissible Level, NA - Not Available/Not Applicable.

NRWQC - National Recommended Water Quality Criteria.

RL - Reporting Limit

RSL - Risk Based Screening Level.

SL - Screening Level. SW - Surface Water USEPA - United States Environmental Protection Agency.

- (a) The hierarchy for selection among the Human Health Screening Levels for Drinking Water, as shown in Table 7-2, is:
  1) IDEM Groundwater Tap Residential.

  - 2) IDEM MPL,
- 3) USEPA RSL Tap Water.
- (b) The hierarchy for selection among the Human Health Screening Levels for Surface Water Consumption of Organism Only, as shown in Table 7-2, is:
  - IDEM CCC HLSC Consumption of Organism Only (proposed).
     IDEM CCC HLSC Consumption of Organism Only (current).
- USEPA NRWQC Consumption of Organism Only.
   (c) The hierarchy for the selection of ecological screening levels, as shown in Table 7-3, is:
   1) IDEM Aquatic Life Criterion (proposed).
- 2) IDEM Aquatic Life Criterion (current).
  3) USEPA NRWQC. Aquatic Life Criteria Freshwater.
  (d) Chromium screened as both Total Chromium and Hexavalent Chromium to be conservative.

- Concentration is below screening level. - Concentration is above screening level - Reporting limit is above screening level.

TABLE 4 SUMMARY OF LEACHATE ANALYTICAL RESULTS WITH COMPARISON TO DRINKING WATER AND SURFACE WATER SCREENING LEVELS -FLY ASH - 18 HOUR CCR BENEFICIAL USE ASSESSMENT AES/IPL PETERSBURG PETERSBURG, INDIANA

Constituent	Units	Frequency of Detection	Limits	Reporting for Non- tects	Range of Detected	Average of All Samples	Selected HH DW SL (a) (mg/L)	Selected HH SW SL - Consumption of Organism Only (b) (mg/L)	Selected Eco SW SL - Acute (c) (mg/L)	Selected Eco SW SL - Chronic (c) (mg/L)	Max. or RL Exceeds Selected HH DW SL7	Max. or RL Exceeds Selected HH SW SL - Consumption of Organism Only?	Max. or RL Exceeds Selected Eco SW SL - Acute?	Max. or RL Exceeds Selected Eco SW SL - Chronic?
Inorganic Compounds		I V Town 1	-			1	1119-1	(mg/L)	(mg/c)	(mg/L)				
Aluminum	mg/L	4 / 4			1.1 - 5.8	3.8	20	NA	NA NA	NA.	No	NA	NA	NA
Antimony	mg/L	1 / 1			0.021 - 0.021	0.021	0.006	0.64	NA	NA.	Yes	No	NA NA	NA NA
Arsenic	mg/L	4 / 4			0.49 - 1.9	1.4	0.01	0.000175	0.34	0.15	Yes	Yes	Yes	Yes
Barium	mg/L	2 / 4	0.01	0.01	0.012 - 0.02	0.011	2	NA	NA.	NA	No	NA NA		
Boron	mg/L	4 / 4			8.5 - 24.1	13.4	4	NA.	NA .	NA	Yes	NA NA	NA NA	NA
Cadmium	mg/L	1/4	0.002	0.01	0.0046 - 0.0046	0.0029	0.005	NA.	0.002	0.001	RL			NA
Chromium	mg/L	3 / 4	0.01	0.01	0.021 - 0.025	0.019	0.1	NA.	NA NA	NA.	No	NA	Yes	Yes
Chromium (d)	mg/L	3 / 4	0.01	0.01	0.021 + 0.025	0.019	0.00035	NA NA	0.02	0.01		NA NA	NA	NA
Cobalt	mg/L	0 / 1	0.01	0.01	0.021 - 0.020	0.005	0.006	NA NA	NA NA		Yes	NA	Yes	Yes
Copper	mg/L	1/4	0.01	0.01	0.015 - 0.015	0.008	1.3	NA NA	0.01	NA	RL	NA.	NA	NA
Iron	mg/L	1 / 4	0.1	0.1	0.1 - 0.1	0.06	14			0.01	No	NA	Yes	Yes
Lead	mg/L	0 / 4	0.01	0.01	0,1 - 0,1	0.005	0.015	NA.	NA OLIO	1	No	NA	NA	No
Magnesium	mg/L	2 / 4	0.01	1	1 - 25.1	7		NA.	0.10	0.01	No	NA NA	No	RL
Manganese	mg/L	0 / 4	0.01	0.01	1 - 25.1	0.01	NA.	NA.	NA.	NA	NA	NA	NA	NA .
Mercury	mg/L	0 / 4	0.002	0.002		20,000	0.43	0.1	NA.	NA	No	No	NA	NA NA
Molybdenum	mg/L	4 / 4	0,002	0,002	0.62 - 1.4	0.001	0.002	0.00015	0.001	0.001	No	RL	RL	RL
Nickel		4 / 4				1.1	0.1	NA	NA	NA	Yes	NA	NA	NA
Potassium	mg/L	4 / 4			0.014 - 0.026	0.020	0.39	4.6	0.47	0.05	No	No	No	No
Selenium	mg/L				12.2 - 14.8	13,5	NA	NA	NA	NA.	NA	NA	NA	NA.
Silver	mg/L	4 / 4		0.000	0.4 - 0.64	0.5	0.05	4.2	NA	0.003	Yes	No	NA NA	Yes
	mg/L	0 / 4	0.01	0.01	100 - 000	0.005	0.094	NA.	0.003	NA.	No	NA	RL	NA
Sodium	mg/L	4 / 4	V ann	or trans-	618 - 990	820	NA	NA.	NA	NA.	NA	NA	NA	NA
Thallium	mg/L	0 / 1	0.01	0.01		0.005	0.002	0.048	NA	NA	RL	No	NA.	NA
Vanadium	mg/L	4 / 4	12.00	100	0.12 - 0.42	0.30	0.086	NA.	NA	NA	Yes	NA	NA.	NA.
Zinc	mg/L	0 / 4	0.02	: 0.02	36 79 3	0.01	6	26	0.12	0.12	No	No	No	No
Other	100										The second second			- 50.00
Acidity, Total	mg/L	0 / 4	10	: 10	130	5	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total as CaCO3	mg/L	4 / 4			86.3 - 290	184	NA	NA.	NA.	NA.	NA	NA	NA	NA.
Chloride	mg/L	4 / 4			176 - 309	251	250	NA	860	230	Yes	NA	No	Yes
Fluoride	mg/L	4 / 4			1.1 - 1.7	1.5	0.8	NA	NA.	NA	Yes	NA	NA	NA
pH at 25 Degrees C	Std. Units	4/4			9.2 - 10.6	10	NA	NA	NA.	6.5-9	NA	NA.	NA.	Yes
Sulfate	mg/L	4/4			B26 - 1640	1379	250	NA	NA NA	NA	Yes	NA	NA NA	NA NA
Sulfide	mg/L	0 / 4	0.1	0.1		0.05	NA	NA.	NA.	NA	NA	NA	NA NA	NA NA
Total Dissolved Solids	mg/L	4 / 4			2120 - 3140	2643	500	NA	NA NA	NA	Yes	NA NA	NA NA	NA NA
Total Organic Carbon	mg/L	4 / 4			1.3 - 3.5	2.3	NA	NA.	NA NA	NA	NA NA	NA NA	NA NA	NA NA
Initial pH	Std. Units	1/1			10.44 - 10.44	10.44	NA	NA	NA.	6.5-9	NA NA	NA NA	NA NA	
Final pH	Std. Units	4/4			8.84 - 10.67	9.96	NA	NA NA	NA NA	6.5-9	NA NA	NA NA	NA NA	Yes Yes

CCC HLSC - Continuous Criterion Concentration, Human Life-Cycle Safe Concentration.

DW - Drinking Water.

Eco - Ecological.

IDEM - Indiana Department of Environmental Management.
HH - Human Health.

Max - Maximum Detected Concentration.

mg/L - milligram per liter.

MPL - Maximum Permissible Level.

NA - Not Available/Not Applicable.

NRWQC - National Recommended Water Quality Criteria.

RL - Reporting Limit.

RSL - Risk Based Screening Level.

SL - Screening Level. SW - Surface Water. USEPA - United States Environmental Protection Agency.

(a) - The hierarchy for selection among the Human Health Screening Levels for Drinking Water, as shown in Table 7-2, is:
1) IDEM Groundwater Tap Residential.
2) IDEM MPL.

3) USEPA RSL - Tap Water.

(b) - The hierarchy for selection among the Human Health Screening Levels for Surface Water - Consumption of Organism Only, as shown in Table 7-2, is:

1) IDEM CCC HLSC - Consumption of Organism Only (proposed).

1) IDEM CCC HLSC - Consumption of Organism Only (proposed).
2) IDEM CCC HLSC - Consumption of Organism Only (current).
3) USEPA NRWQC - Consumption of Organism Only.
(c) - The hierarchy for the selection of ecological screening levels, as shown in Table 7-3, is:
1) IDEM Aquatic Life Criterion (proposed).
2) IDEM Aquatic Life Criterion (current).
3) USEPA NRWQC. Aquatic Life Criteria - Freshwater.
(d) - Chromium screened as both Total Chromium and Hexavalent Chromium to be conservative.

- Concentration is below screening level. Concentration is above screening level. - Reporting limit is above screening level.

TABLE 5 SUMMARY OF LEACHATE ANALYTICAL RESULTS WITH COMPARISON TO DRINKING WATER AND SURFACE WATER SCREENING LEVELS -FLY ASH - 30 DAY CCR BENEFICIAL USE ASSESSMENT AES/IPL PETERSBURG PETERSBURG, INDIANA

Inorganic Compounds Aluminum Antimony Arsenic Barium Boron Cadmium Chromium Chromium (d) Cobalt Copper	mg/L mg/L mg/L mg/L mg/L mg/L mg/L	4 / 4 1 / 1 4 / 4 4 / 4 4 / 4 2 / 4 4 / 4	0.002		1 - 8.9 0.035 - 0.03 0.7 - 2.2		20	1000		(mg/L)				In the second second second second
Antimony Arsenic Barium Boron Cadmium Chromium Chromium (d) Cobalt Copper	mg/L mg/L mg/L mg/L mg/L mg/L mg/L	1 / 1 4 / 4 4 / 4 4 / 4 2 / 4	0.002		0.035 - 0.03 0.7 - 2.2	5 0.035		1,000	The second second second					
Arsenic Barium Boron Cadmium Chromium (d) Cobalt Copper	mg/L mg/L mg/L mg/L mg/L mg/L	4 / 4 4 / 4 4 / 4 2 / 4	0.002		0.7 - 2.2			NA.	NA NA	NA	No	NA NA	NA.	NA.
Barium Boron Cadmium Chromium Chromium (d) Cobalt Copper Iron	mg/L mg/L mg/L mg/L mg/L	4 / 4 4 / 4 2 / 4	0.002				0.006	0.64	NA NA	NA	Yes	No	NA.	NA
Boron Cadmium Chromium Chromium (d) Cobalt Copper	mg/L mg/L mg/L mg/L	4 / 4 2 / 4	0.002			1.8	0.01	0.000175	0.34	0.15	Yes	Yes	Yes	Yes
Cadmium Chromium Chromium (d) Cobalt Copper Iron	mg/L mg/L mg/L	2 / 4	0.002		0.014 - 0.03	6 0.025	2	NA	NA.	NA	No	NA.	NA NA	NA NA
Chromium Chromium (d) Cobalt Copper Iron	mg/L mg/L		0.002		8.6 - 24	14.2	4	NA.	NA NA	NA	Yes	NA.	NA NA	NA NA
Chromium (d) Cobalt Copper Iron	mg/L	4 / 4		0.01	0.0021 - 0.00	24 0.0026	0.005	NA.	0.002	0.001	RL	NA NA		
Cobalt Copper Iron					0.012 - 0.03		0.1	NA.	NA.	NA.	No	NA NA	Yes	Yes
Copper Iron		4 / 4			0.012 - 0.03		0.00035	NA.	0.02	0.01	Yes		NA	NA
Copper Iron	111120110	0 / 1	0.01	0.01		0.005	0.006	NA.	NA NA	NA.		NA	Yes	Yes
Iron	mg/L	1 / 4	0.01	0.01	0.011 - 0.01		1.3	NA NA	0.01	0.01	RL	NA	NA	NA:
	mg/L	1/4	0.1	0.1	3.6 - 3.6	0.9375	14	NA NA	NA NA		No	NA:	No	Yes
Lead	mg/L	1 / 4	0.01	0.01	0.023 - 0.02		0.015	1.797		1	No	NA	NA	Yes
Magnesium	mg/L	2 / 4	1	1	1.1 - 22.7		NA NA	NA NA	0.10	0.01	Yes	NA .	No	Yes
Manganese	mg/L	0 / 4	0.01	0.01	1.1 - 22.1	0.01	0.43	NA 0.4	NA	NA	NA.	NA.	NA	NA
Mercury	mg/L	0 / 4	0.002	0.002	11 + 1	0.001		0.1	NA	NA	No	No	NA	NA
Molybdenum	mg/L	4 / 4	0.002	0,002	0.70 4.4	100000000000000000000000000000000000000	0.002	0.00015	0.001	0.001	No	RL	RL	RL
Nickel	mg/L	4/4			0.78 - 1.4	1,1	0.1	NA	NA	NA	Yes	NA.	NA	NA.
Potassium		100			0.02 - 0.03		0.39	4.6	0.47	0.05	No	No	No	No
Selenium	mg/L	4 / 4			13 - 15.5		NA	NA	NA	NA	NA.	NA	NA	NA.
Silver	mg/L	4 / 4			0.42 - 0.69	0.56	0.05	4.2	NA	0.003	Yes	No	NA NA	Yes
	mg/L	0 / 4	0.01	0,01		0.01	0.094	NA	0.003	NA	No	NA	RL	NA.
Sodium	mg/L	4 / 4	200	2000	568 - 955	775	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	mg/L	0 / 1	0.01	0.01		0.01	0.002	0.048	NA.	NA	RL	No No	NA NA	NA
Vanadium	mg/L	4 / 4			0.22 - 0.62		0.086	NA	NA	NA.	Yes	NA.	NA.	NA
Zinc Other	mg/L	1 / 4	0.02	0.02	0.048 - 0.04	8 0.020	6.	26	0.12	0.12	No	No	No	No
Acidity, Total	mg/L	0 / 4	10	10	506 100	5	NA	NA	NA	NA.	NA NA	NA	NA	NA
Alkalinity, Total as CaCO3	mg/L	4 / 4			91.2 - 247	169	NA	NA.	NA NA	NA	NA.	NA NA	NA NA	NA NA
Chloride	mg/L	4 / 4			155 - 293	245	250	NA.	860	230	Yes	NA.	No	Yes
Fluoride	mg/L	4 / 4			0.97 - 2	1.6	8.0	NA.	NA	NA	Yes	NA NA	NA NA	NA NA
pH at 25 Degrees C	Std. Units	4/4			9.2 - 10.6	10	NA	NA NA	NA	6.5-9	NA	NA NA	NA NA	Yes
Sulfate	mg/L	4 / 4			719 - 161	1297	250	NA	NA NA	NA	Yes	NA NA	NA NA	
Sulfide	mg/L	0 / 4	0.1	0.1	1000	0.1	NA	NA.	NA NA	NA	NA NA	NA NA		NA NA
Total Dissolved Solids	mg/L	4 / 4	1000		1870 - 306		500	NA NA	NA NA	NA	Yes		NA NA	NA
Total Organic Carbon	mg/L	4 / 4			1 - 3.4	1.9	NA	NA NA	NA NA	NA		NA NA	NA	NA
	Std. Units	4 / 4			9 - 10.6		NA	NA NA	NA NA	6.5-9	NA NA	NA	NA	NA.

CCC HLSC - Continuous Criterion Concentration. Human Life-Cycle Safe Concentration.
DW - Drinking Water.
Eco - Ecological.
IDEM - Indiana Department of Environmental Management.

HH - Human Health.

Max - Maximum Detected Concentration.

mg/L - milligram per liter.

MPL - Maximum Permissible Level.

NA - Not Available/Not Applicable.

NRWQC - National Recommended Water Quality Criteria.

RL - Reporting Limit.

RSL - Risk Based Screening Level.

St. - Screening Level, SW - Surface Water, USEPA - United States Environmental Protection Agency.

(a) - The hierarchy for selection among the Human Health Screening Levels for Drinking Water, as shown in Table 7-2, is:
 1) IDEM Groundwater Tap Residential,
 2) IDEM MPL,

3) USEPA RSL - Tap Water,

(b) - The hierarchy for selection among the Human Health Screening Levels for Surface Water - Consumption of Organism Only, as shown in Table 7-2, is:
1) IDEM CCC HLSC - Consumption of Organism Only (proposed).
2) IDEM CCC HLSC - Consumption of Organism Only (current).

2) IDEM CCC HLSC - Consumption of Organism Only (current).
3) USEPA NRWQC - Consumption of Organism Only.
(c) - The hierarchy for the selection of ecological screening levels, as shown in Table 7-3, is:
1) IDEM Aquatic Life Criterion (proposed).
2) IDEM Aquatic Life Criterion (current).
3) USEPA NRWQC. Aquatic Life Criteria - Freshwater.
(d) - Chromium screened as both Total Chromium and Hexavalent Chromium to be conservative.

- Concentration is below screening level. - Concentration is above screening level. - Reporting limit is above screening level.

TABLE 6 SUMMARY OF LEACHATE ANALYTICAL RESULTS WITH COMPARISON TO DRINKING WATER AND SURFACE WATER SCREENING LEVELS -**GYPSUM - 18 HOUR** CCR BENEFICIAL USE ASSESSMENT AES/IPL PETERSBURG PETERSBURG, INDIANA

Constituent	Units	Frequency of Detection	Range of Reporting Limits for Non- Detects	Range of Detected	Average of All Samples	Selected HH DW SL (a) (mg/L)	Selected HH SW SL - Consumption of Organism Only (b) (mg/L)	Selected Eco SW SL - Acute (c) (mg/L)	Selected Eco SW SL - Chronic (c) (mg/L)	Max. or RL Exceeds Selected HH DW SL?	Max. or RL Exceeds Selected HH SW SL - Consumption of Organism Only?	Max. or RL Exceeds Selected Eco SW SL - Acute?	Max, or RL Exceeds Selected Eco SW SL - Chronic?
Inorganic Compounds		1 70 KW 4		In THE CO. of No. 176	1		1	The State of the S	137				
Aluminum	mg/L	4 / 4		0.26 - 0.42	0.36	20	NA.	NA	NA	No	NA NA	NA.	NA
Antimony	mg/L	0 / 1	0.008 : 0.008	1.33 5	0.004	0.006	0.64	NA	NA	RL	No	NA.	NA
Arsenic	mg/L	0 / 4	0.01 : 0.01	The second second	0.005	0.01	0.000175	0.34	0.15	No	RL	No	No
Barium	mg/L	4 / 4		0.024 - 0.027	0.026	2	NA.	NA	NA	No	NA	NA.	NA NA
Boron	mg/L	4 / 4	A Paris	0.66 - 2.8	1.6	4	NA	NA	NA	No	NA.	NA NA	NA NA
Cadmium	mg/L	0 / 4	0.002 : 0.002		0.001	0.005	NA	0.002	0.001	No.	NA	RL	RL
Chromium	mg/L	0 / 4	0.01 : 0.01		0.01	0.1	NA.	NA NA	NA	No	NA NA	NA.	NA NA
Chromium (d)	mg/L	0 / 4	0.01 : 0.01		0.01	0.00035	NA.	0.02	0.01	RL	NA NA		
Cobalt	mg/L	0 / 1	0.01 : 0.01	H. 13	0.01	0.006	NA NA	NA NA	NA	RL	NA NA	No	No
Copper	mg/L	0 / 4	0.01 : 0.01	11. 70	0.01	1.3	NA NA	0.01	0.01	No.		NA.	NA
Iron	mg/L	1 / 4	0.1 : 0.1	0.16 - 0.16	0.08	14	NA.	NA NA	0.01		NA NA	No	RL
Lead	mg/L	0 / 4	0.01 : 0.01	0.10	0.01	0.015	NA.	0.10	0.01	No	NA	NA.	No
Magnesium	mg/L	4/4	0.01	3.9 - 16	10	NA	NA NA	NA NA		No	NA NA	No	RL
Manganese	mg/L	3 / 4	0.01 : 0.01	0.029 - 0.13	0.05	0.43	0.1		NA	NA	NA.	NA	NA
Mercury	mg/L	0 / 4	0.002 : 0.002	0.023 - 0.13	0.001	0.002	0.00015	NA 0.004	NA	No	Yes	NA	NA
Molybdenum	mg/L	0 / 4	0.01 : 0.01		0.001	0.002		0.001	0.001	No	RL	RL	RL
Nickel	mg/L	0 / 4	0.01 : 0.01		0.01	0.39	NA NA	NA	NA	No	NA	NA	NA
Potassium	mg/L	0 / 4		The same	0.01		4.6	0.47	0.05	No	No	No.	No
Selenium	mg/L	4 / 4	1:1	0.012 - 0.017	1.000	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/L	0 / 4	0.01 . 0.01	0.012 - 0.017	0.015	0.05	4.2	NA	0.003	No	No	NA NA	Yes
Sodium	1 March 1981	4 / 4	0.01 : 0.01	10 50	0.01	0.094	NA.	0.003	NA	No	NA.	RL	NA
Thallium	mg/L		0.01	1.6 - 5.6	3.2	NA.	NA	NA	NA	NA	NA	NA	NA.
Vanadium	mg/L	0 / 1	0.01 : 0.01		0.01	0.002	0.048	NA	NA	RL	No	NA	NA
Vanadium Zinc	mg/L	0 / 4	0.01 : 0.01		0.01	0.086	NA	NA	NA	No	NA	NA	NA.
	mg/L	0 / 4	0.02 : 0.02		0.01	6	26	0.12	0.12	No	No	No	No
Other	U Selvin	40.0	12 52		100		3500						
Acidity, Total	mg/L	0 / 4	10 10	225 142.2	5	NA	NA	NA	NA	NA	NA	NA:	NA
Alkalinity, Total as CaCO3	mg/L	4 / 4		7.2 - 15.3	10	NA	NA.	NA	NA	NA	NA	NA	NA NA
Chloride	mg/L	4 / 4		2.9 - 12.4	6.6	250	NA.	860	230	No	NA	No	No
Fluoride	mg/L	4 / 4		0.58 - 5.5	3.2	0.8	NA.	NA	NA.	Yes	NA	NA.	NA
pH at 25 Degrees C	Std. Units	4 / 4		7.8 - 8.1	8.0	NA.	NA	NA NA	6.5-9	NA	NA	NA	No
Sulfate	mg/L	4 / 4		905 - 1800	1439	250	NA.	NA	NA	Yes	NA	NA	NA
Sulfide	mg/L	0 / 4	0.1 . 0.1	The state of the s	0.05	NA	NA.	NA	NA	NA	NA	NA NA	NA
Total Dissolved Solids	mg/L	4 1 4		2170 - 2280	2220	500	NA	NA	NA	Yes	NA	NA NA	NA
Total Organic Carbon	mg/L	0 / 4	1 1 1	1950 9.00	0.5	NA	NA	NA	NA	NA	NA.	NA NA	NA
Initial pH	Std. Units	1 / 1		7.32 - 7.32	7.32	NA	NA	NA	6.5-9	NA	NA	NA NA	No
Final pH	Std. Units	4 / 4		7.18 - 7.54	7.36	NA.	NA .	NA	6.5-9	NA.	NA	NA NA	No

CCC HLSC - Continuous Criterion Concentration, Human Life-Cycle Safe Concentration.

DW - Drinking Water.

Eco - Ecological.
IDEM - Indiana Department of Environmental Management.
HH - Human Health.

Max - Maximum Detected Concentration.

mg/L - milligram per liter.

MPL - Maximum Permissible Level. NA - Not Available/Not Applicable.

NRWQC - National Recommended Water Quality Criteria.

RL - Reporting Limit.

RSL - Risk Based Screening Level. SL - Screening Level.

SW - Surface Water,

USEPA - United States Environmental Protection Agency.

(a) - The hierarchy for selection among the Human Health Screening Levels for Drinking Water, as shown in Table 7-2, is:

1) IDEM Groundwater Tap Residential.

2) IDEM MPL.

2) IDEM MPL.
3) USEPA RSL - Tap Water.
(b) - The hierarchy for selection among the Human Health Screening Levels for Surface Water - Consumption of Organism Only, as shown in Table 7-2, is:
1) IDEM CCC HLSC - Consumption of Organism Only (current).
2) IDEM CCC HLSC - Consumption of Organism Only (current).
3) USEPA NRWQC - Consumption of Organism Only.

(c) The hierarchy for the calculus of professional screening levels as shown in Table 7-3, is:

(c) - The hierarchy for the selection of ecological screening levels, as shown in Table 7-3, is:

1) IDEM Aquatic Life Criterion (proposed).

DEM Aquatic Life Criterion (current).
 USEPA NRWQC. Aquatic Life Criteria - Freshwater.

(d) - Chromium screened as both Total Chromium and Hexavalent Chromium to be conservative.

- Concentration is below screening level. Concentration is above screening level Reporting limit is above screening level.

TABLE 7 SUMMARY OF LEACHATE ANALYTICAL RESULTS WITH COMPARISON TO DRINKING WATER AND SURFACE WATER SCREENING LEVELS -GYPSUM - 30 DAY CCR BENEFICIAL USE ASSESSMENT AES/IPL PETERSBURG PETERSBURG, INDIANA

Constituent	Units	Frequency of Detection	Range of Reporting Limits for Non- Detects	Range of Detected Concentrations	Average of All Samples	Selected HH DW SL (a) (mg/L)	HH SW SL - Consumption of Organism Only (b) (mg/L)	Selected Eco SW SL - Acute (c) (mg/L)	Selected Eco SW SL - Chronic (c) (mg/L)	Max. or RL Exceeds Selected HH DW SL?	Max. or RL Exceeds Selected HH SW SL - Consumption of Organism Only?	Max. or RL Exceeds Selected Eco SW SL - Acute?	Max, or RL Exceeds Selected Eco SW SL - Chronic?
Inorganic Compounds	10.755270		THE RESERVE OF THE PARTY OF THE	100000000000000000000000000000000000000	1.3.001								
Aluminum	mg/L	1 / 4	0.2 : 0.2	0.24 - 0.24	0.14	20	NA	NA	NA NA	No	NA	NA	NA
Antimony	mg/L	0 / 1	0.008 ; 0.008		0.004	0.006	0.64	NA	NA	RL	No	NA.	NA
Arsenic	mg/L	0 / 4	0.01 ; 0.01		0.01	0.01	0.000175	0.34	0.15	No	RL	No	No
Barium	mg/L	4 / 4		0.021 - 0.024	0.023	2	NA	NA	NA	No	NA	NA	NA
Boron	mg/L	4 / 4	1	0.76 - 2.8	1.8	4	NA NA	NA	NA	No	NA.	NA.	NA
Cadmium	mg/L	0 / 4	0.002 : 0.002		0.001	0.005	NA.	0.002	0.001	No	NA.	RL	RL
Chromium	mg/L	0 / 4	0.01 : 0.01	71.	0.01	0.1	NA.	NA	NA	No	NA	NA.	NA
Chromium (d)	mg/L	0 / 4	0.01 ; 0.01		0.01	0.00035	NA NA	0.02	0.01	RL	NA	No	No
Cobalt	mg/L	0 / 1	0.01 : 0.01		0.01	0.006	NA NA	NA	NA	RL	NA NA	NA NA	NA.
Copper	mg/L	0 / 4	0.01 : 0.01	11. 94. 1	0.01	1.3	NA.	0.01	0.01	No	NA NA	No	
Iron	mg/L	0 / 4	0.1 : 0.1		0.1	14	NA NA	NA NA	1	No.	NA NA		RL
Lead	mg/L	0 / 4	0.01 : 0.01	1. 1. 2. 1.	0.01	0.015	NA NA	0.10	0.01	No	NA NA	NA	No
Magnesium	mg/L	4 / 4	(2)23(0) (3,23(4))	5.1 - 16.5	11.8	NA	NA NA	NA.	NA NA	NA NA		No	RL
Manganese	mg/L	1/4	0.01 : 0.01	0.11 - 0.11	0.03	0.43	0.1	NA	NA.		NA	NA	NA
Mercury	mg/L	0 / 4	0.002 : 0.002	0.11	0.001	0.002	0.00015	0.001		No	Yes	NA	NA
Molybdenum	mg/L	1 / 4	0.01 : 0.01	0.012 - 0.012	0.007	0.1	NA NA		0.001	No	RL	RL	RL
Nickel	mg/L	0 / 4	0.01 : 0.01	0.012 - 0.012	0.007			NA	NA .	No	NA	NA	NA
Potassium	mg/L	1 / 4	1 - 1	1.1 - 1.1	0.65	0.39	4.6	0.47	0.05	No	No	No	No
Selenium	mg/L	4/4				NA	NA.	NA	NA	NA	NA	NA	NA
Silver		0 / 4	0.01 : 0.01	0.012 - 0.022	0.018	0.05	4.2	NA	0.003	No	No	NA	Yes
Sodium	mg/L	4 / 4	0.01 : 0.01	7.0	0.01	0.094	NA	0,003	NA.	No	NA.	RL	NA.
Thallium	mg/L	0 / 1	0.04	2.4 - 7.6	4.0	NA	NA	NA	NA	NA	NA:	NA	NA
	mg/L		0.01 : 0.01	V II. W AL	0.01	0.002	0.048	NA	NA.	RL	No	NA	NA
Vanadium	mg/L	0 / 4	0.01 : 0.01		0.01	0.086	NA	NA	NA	No	NA	NA	NA
Zinc Other	mg/L	0 / 4	0.02 : 0.02	1	0.01	6	26	0.12	0.12	No	No	No	No
Acidity, Total	mg/L	0 / 4	10 : 10	Charles and the	5	NA	NA.	NA	NA	NA NA	NA	NA	NA.
Alkalinity, Total as CaCO3	mg/L	4/4	HA A TANK	9.6 - 16.8	13	NA	NA.	NA	NA.	NA	NA	NA	NA
Chloride	mg/L	4 / 4		3.1 - 11.4	6.7	250	NA.	860	230	No	NA	No	No
Fluoride	mg/L	4 / 4		4.2 - 6.4	5.0	0.8	NA.	NA	NA.	Yes	NA	NA	NA.
pH at 25 Degrees C	Std. Units	4/4		6.5 - 8	8	NA	NA.	NA	6.5-9	NA	NA	NA NA	No
Sulfate	mg/L	4 / 4		751 - 1840	1470	250	NA.	NA	NA.	Yes	NA NA	NA NA	NA NA
Sulfide	mg/L	0 / 4	0.1 0.1	Same Allerday	0.1	NA	NA NA	NA	NA.	NA NA	NA NA	NA NA	NA NA
Total Dissolved Solids	mg/L	4 / 4		2210 - 2320	2243	500	NA NA	NA	NA NA	Yes	NA NA	NA NA	1000
Total Organic Carbon	mg/L	0 / 4	1 1	7515	1	NA	NA.	NA	NA NA	NA NA			NA
Final pH	Std. Units	4/4	- CALCOVER	7.1 - 8.13	7.5	NA.	NA NA	NA NA	6.5-9	NA NA	NA NA	NA NA	NA No

CCC HLSC - Continuous Criterion Concentration. Human Life-Cycle Safe Concentration.

DW - Drinking Water.

Eco - Ecological.

IDEM - Indiana Department of Environmental Management. HH - Human Health. Max. - Maximum Detected Concentration.

mg/L - milligram per liter.

MPL - Maximum Permissible Level,

NA - Not Available/Not Applicable.
NRWQC - National Recommended Water Quality Criteria.

RL - Reporting Limit. RSL - Risk Based Screening Level.

SL - Screening Level.

SW - Surface Water.

USEPA - United States Environmental Protection Agency.

(a) - The hierarchy for selection among the Human Health Screening Levels for Drinking Water, as shown in Table 7-2, is: 1) IDEM Groundwater Tap Residential.

3) USEPA RSL - Tap Water.

(b) - The hierarchy for selection among the Human Health Screening Levels for Surface Water - Consumption of Organism Only, as shown in Table 7-2, is:
1) IDEM CCC HLSC - Consumption of Organism Only (proposed).

2) IDEM CCC HLSC - Consumption of Organism Only (current).

USEPA NRWQC - Consumption of Organism Only.

(c) - The hierarchy for the selection of ecological screening levels, as shown in Table 7-3, is:

1) IDEM Aquatic Life Criterion (proposed).

2) IDEM Aquatic Life Criterion (current).
3) USEPA NRWQC. Aquatic Life Criteria - Freshwater.
(d) - Chromium screened as both Total Chromium and Hexavalent Chromium to be conservative.

- Concentration is below screening level. - Concentration is above screening level. - Reporting limit is above screening level.

TABLE 8 SUMMARY OF LEACHATE ANALYTICAL RESULTS WITH COMPARISON TO DRINKING WATER AND SURFACE WATER SCREENING LEVELS -FILTER CAKE - 18 HOUR CCR BENEFICIAL USE ASSESSMENT AES/IPL PETERSBURG PETERSBURG, INDIANA

Constituent	Units	Frequency of Detection	Range of Reporting Limits for Non- Detects	Range of Detected	Average of All Samples	Selected HH DW SL (a) (mg/L)	Selected HH SW SL - Consumption of Organism Only (b) (mg/L)	Selected Eco SW SL - Acute (c) (mg/L)	Selected Eco SW SL - Chronic (c) (mg/L)	Max. or RL Exceeds Selected HH DW SL?	Max. or RL Exceeds Selected HH SW SL - Consumption of Organism Only?	Max. or RL Exceeds Selected Eco SW SL - Acute?	Max. or RL Exceeds Selected Eco SW SL - Chronic?
Inorganic Compounds	1 7 9 9	Septiment of the				(3-4)	(373/2)	(mg/L)	(mg/L)		A PERSONAL PROPERTY.		
Aluminum	mg/L	4/4		0.38 - 0.49	0.45	20	NA	NA NA	NA	No	NA	NA.	NA.
Antimony	mg/L	1/1		0.03 - 0.03	0.03	0.006	0.64	NA NA	NA	Yes	No	NA NA	NA NA
Arsenic	mg/L	4/4		0.14 - 0.29	0.23	0.01	0.000175	0.34	0.15	Yes	Yes	No	
Barium	mg/L	4/4		0.054 - 0.078	0.065	2	NA	NA NA	NA	No	NA NA	NA NA	Yes NA
Boron	mg/L	4/4	0.00	10.9 - 13.9	11.9	4	NA.	NA NA	NA	Yes	NA NA		
Cadmium	mg/L	0 / 4	0.002 : 0.002	17 12 12 12 12 12 12 12 12 12 12 12 12 12	0.001	0.005	NA.	0.002	0.001	No		NA	NA NA
Chromium	mg/L	2/4	0.01 : 0.01	0.011 - 0.015	0.009	0.1	NA NA	NA.	NA.	No	NA	RL	RL
Chromium (d)	mg/L	2/4	0.01 : 0.01	0.011 - 0.015	0.009	0.00035	NA NA	0.02	0.01	NO	NA	NA	NA.
Cobalt	mg/L	0 / 1	0.01 : 0.01	0.011	0.005	0.006	NA NA	NA NA	NA.		1000	7015	1222
Copper	mg/L	0 / 4	0.01 : 0.01		0.005	1.3	NA NA	0.01		RL	NA	NA	NA .
Iron	mg/L	0 / 4	0.1 : 0.1		0.05	14	NA NA		0.01	No	NA	No	RL
Lead	mg/L	0 / 4	0.01 : 0.01	III Company III	0.005	0.015		NA .	7	No	NA	NA	No
Magnesium	mg/L	4/4	0.01 , 0.01	5.7 - 13.2	9.0		NA	0.10	0.01	No	NA	No	RL
Manganese	mg/L	0 / 4	0.01 : 0.01	3.7 - 13.2	0.005	NA	NA	NA.	NA	NA	NA NA	NA	NA.
Mercury	mg/L	0 / 4	0.002 : 0.002			0.43	0,1	NA	NA	No	No	NA NA	NA
Molybdenum	mg/L	4/4	0.002 0.002	0.0 0.05	0.001	0.002	0.00015	0.001	0.001	No	RL	RL	RL
Nickel		0 / 4	0.04	0.6 - 0.95	8.0	0.1	NA	NA	NA	Yes	NA	NA	NA
Potassium	mg/L		0.01 : 0.01	20 00	0.005	0,39	4.6	0.47	0.05	No	No	No	No
Selenium	mg/L	4 / 4		6.9 - 8.8	7.6	NA	NA	NA	NA	NA NA	NA	NA	NA.
	mg/L	4 / 4	224	0.23 - 0.34	0.29	0.05	4.2	NA	0.003	Yes	No	NA	Yes
Silver	mg/L	0 / 4	0.01 : 0.01	Terre to the	0.005	0.094	NA	0.003	NA	No	NA	RL	NA
Sodium	mg/L	4 / 4		269 - 317	286	NA	NA	NA.	NA	NA	NA	NA.	NA
Thallium	mg/L	0/1	0.01 ; 0.01	1000 Table 1	0.005	0.002	0.048	NA	NA	RL	No	NA.	NA
Vanadium	mg/L	4/4	30.0	0.049 - 0.13	0.11	0.086	NA NA	NA.	NA	Yes	NA	NA	NA
Zinc	mg/L	0 / 4	0.02 : 0.02		0.01	6	26	0.12	0.12	No	No	No	No
Other		1 2 15 1			11.00							200	
Acidity, Total	mg/L	0 / 4	10 : 10		5	NA	NA	NA.	NA	NA NA	NA	NA	NA
Alkalinity, Total as CaCO3	mg/L	4 / 4		63.6 - 87	74	NA	NA	NA NA	NA:	NA	NA.	NA	NA
Chloride	mg/L	4/4		121 - 160	138	250	NA	860	230	No	NA	No	No
Fluoride	mg/L	4 / 4		0.9 - 1.5	1.2	8.0	NA	NA	NA	Yes	NA	NA NA	NA
pH at 25 Degrees C	Std. Units	4/4		9.1 - 9.4	9.2	NA	NA.	NA	6.5-9	NA	NA	NA NA	Yes
Sulfate	mg/L	4 / 4		870 - 1690	1428	250	NA.	NA	NA	Yes	NA.	NA NA	NA NA
Sulfide	mg/L	0 / 4	0.1 ; 0.1		0.05	NA	NA NA	NA.	NA	NA	NA	NA NA	NA
Total Dissolved Solids	mg/L	4 / 4		1930 - 3000	2455	500	NA.	NA	NA	Yes	NA.	NA NA	NA NA
Total Organic Carbon	mg/L	2 / 4	1 : 1	1.3 - 1.3	0.9	NA	NA.	NA	NA	NA	NA NA	NA NA	NA NA
Initial pH	Std. Units	1/1		9.39 - 9.39	9.39	NA	NA	NA.	6.5-9	NA NA	NA NA	NA NA	
Final pH	Std. Units	4/4		8.67 - 9.39	9.08	NA	NA.	NA.	6.5-9	NA NA	NA NA	NA NA	Yes Yes

CCC HLSC - Continuous Criterion Concentration. Human Life-Cycle Safe Concentration.

DW - Drinking Water.

Max. - Maximum Detected Concentration.

mg/L - milligram per liter.

MPL - Maximum Permissible Level, NA - Not Available/Not Applicable.

NRWQC - National Recommended Water Quality Criteria.

Eco - Ecological.

IDEM - Indiana Department of Environmental Management.

HH - Human Health. RL - Reporting Limit. RSL - Risk Based Screening Level. SL - Screening Level. SW - Surface Water. USEPA - United States Environmental Protection Agency.

- (a) The hierarchy for selection among the Human Health Screening Levels for Drinking Water, as shown in Table 7-2, is:
- 1) IDEM Groundwater Tap Residential.
  2) IDEM Groundwater Tap Residential.
  2) IDEM MPL.
  3) USEPA RSL Tap Water.

  (b) The hierarchy for selection among the Human Health Screening Levels for Surface Water Consumption of Organism Only, as shown in Table 7-2, is:
  1) IDEM CCC HLSC Consumption of Organism Only (proposed).
  2) IDEM CCC HLSC Consumption of Organism Only (current).
  3) USEPA NRWQC Consumption of Organism Only.

  (c) The hierarchy for the selection of organism Only.
- (c) The hierarchy for the selection of ecological screening levels, as shown in Table 7-3, is:
  - 1) IDEM Aquatic Life Criterion (proposed)
- 2) IDEM Aquatic Life Criterion (current).
  3) USEPA NRWQC. Aquatic Life Criteria Freshwater.
  (d) Chromium screened as both Total Chromium and Hexavalent Chromium to be conservative.

- Concentration is below screening level - Concentration is above screening level. - Reporting limit is above screening level.

SUMMARY OF LEACHATE ANALYTICAL RESULTS WITH COMPARISON TO DRINKING WATER AND SURFACE WATER SCREENING LEVELS -FILTER CAKE - 30 DAY CCR BENEFICIAL USE ASSESSMENT AES/IPL PETERSBURG PETERSBURG, INDIANA

Constituent	Units	Frequency of Detection	Range of Reporting Limits for Non- Detects	Range of Detected	Average of All Samples	Selected HH DW SL (a) (mg/L)	Selected HH SW SL - Consumption of Organism Only (b) (mg/L)	Selected Eco SW SL - Acute (c) (mg/L)	Selected Eco SW SL - Chronic (c) (mg/L)	Max, or RL Exceeds Selected HH DW SL?	Max, or RL Exceeds Selected HH SW SL - Consumption of Organism Only?	Max. or RL Exceeds Selected Eco SW SL - Acute?	Max. or RL Exceeds Selected Eco SW SL - Chronic?
Inorganic Compounds					1								
Aluminum	mg/L	4 / 4		0.48 - 0.7	0.61	20	NA NA	NA.	NA	No	NA	NA	NA.
Antimony	mg/L	1 / 1		0.032 - 0.032	0.032	0.006	0.64	NA.	NA	Yes	No	NA	NA
Arsenic	mg/L	4 / 4		0.27 - 0.42	0.34	0.01	0.000175	0.34	0.15	Yes	Yes	Yes	Yes
Barium	mg/L	4/4		0.069 - 0.11	0.09	2	NA	NA	NA	No	NA	NA NA	NA.
Boron	mg/L	4/4		11.5 - 14.5	12.6	4	NA	NA NA	NA	Yes	NA NA	NA NA	
Cadmium	mg/L	0 / 4	0.002 : 0.002	The state of the s	0.001	0.005	NA	0.002	0.001	No.	NA.		NA
Chromium	mg/L	1 / 4	0.01 : 0.01	0.014 - 0.014	0.007	0.1	NA NA	NA NA	NA.	No		RL	RL
Chromium (d)	mg/L	1/4	0.01 : 0.01	0.014 - 0.014	0.007	0.00035	NA.	0.02	0.01	Yes	NA:	NA	NA
Cobalt	mg/L	0 / 1	0.01 : 0.01	2.011	0.005	0.006	NA NA	NA.	NA		NA.	No	Yes
Copper	mg/L	0 / 4	0.01 : 0.01	11 12 1 1 1 2 3 1 1	0.005	1.3	NA NA	0.01		RL	NA.	NA	NA
Iron	mg/L	1 / 4	0.1 : 0.1	0.17 - 0.17	0.003	14			0.01	No	NA.	No	RL
Lead	mg/L	0 / 4	0.01 : 0.01	0.17 - 0.17	0.005	0.015	NA	NA		No	NA.	NA	No
Magnesium	mg/L	4/4	0.01 . 0.01	9 - 15.2	11.7		NA	0.10	0.01	No	NA	No	RL
Manganese	mg/L	2 / 4	0.01 : 0.01			NA	NA	NA	NA	NA	NA	NA	NA
Mercury		0 / 4		0.011 - 0.011	0.008	0.43	0.1	NA	NA	No	No	NA	NA
	mg/L	1000 1000 1000	0.002 : 0.002	0.00 0.00	0.001	0.002	0.00015	0.001	0.001	No	RL	RL	RL
Molybdenum	mg/L	4/4	221	0.63 - 0.96	0.79	0.1	NA	NA	NA	Yes	NA.	NA	NA
Nickel	mg/L	0 / 4	0.01 : 0.01		0.005	0.39	4.6	0.47	0.05	No	No	No	No
Potassium	mg/L	4 / 4		6.9 - 9.4	7.7	NA	NA NA	NA NA	NA	NA NA	NA	NA.	NA
Selenium	mg/L	4 / 4	10 may 1 m (0.000)	0.2 - 0.3	0.27	0.05	4.2	NA	0.003	Yes	No	NA	Yes
Silver	mg/L	0 / 4	0.01 : 0.01		0.005	0.094	NA	0.003	NA	No	NA	RL	NA NA
Sodium	mg/L	4 / 4		256 - 285	273	NA	NA	NA	NA	NA NA	NA	NA.	NA.
Thallium	mg/L	0 / 1	0.01 : 0.01		0.005	0.002	0.048	NA	NA	RL	No	NA.	NA
Vanadium	mg/L	4 / 4		0.12 - 0.23	0.17	0.086	NA	NA	NA	Yes	NA.	NA.	NA.
Zinc	mg/L	0 / 4	0.02 : 0.02		0.01	6	26	0.12	0.12	No	No	No	No
Other	2.000				200		14 1780 11	1,045	10000		140	140	NO
Acidity, Total	mg/L	0 / 4	10 : 10		5	NA	NA.	NA	NA	NA.	NA.	NA	NA
Alkalinity, Total as CaCO3	mg/L	4 / 4		63.7 - 81.3	72.4	NA	NA.	NA	NA	NA NA	NA NA	NA NA	NA NA
Chloride	mg/L	4 / 4		120 - 141	132	250	NA.	860	230	No			
Fluoride	mg/L	4/4		1.2 - 2.3	1.8	0.8	NA.	NA.	NA NA	Yes	NA NA	No.	No
pH at 25 Degrees C	Std. Units	4/4		8.9 - 9.2	9.1	NA	NA.	NA.	6.5-9	NA NA		NA.	NA
Sulfate	mg/L	4/4	1.0	868 - 2000	1555	250	NA.	NA NA	NA	Yes	NA	NA	Yes
Sulfide	mg/L	0 / 4	0.1 : 0.1	2000	0.05	NA NA	NA NA	NA NA			NA	NA	NA
Total Dissolved Solids	mg/L	4 / 4	9,1	2720 - 3070	2875	500			NA	NA	NA	NA	NA
Total Organic Carbon	mg/L	0 / 4	1 1	2720 - 3070	0.5	NA NA	NA NA	NA	NA	Yes	NA	NA	NA
Final pH	Std. Units	4/4	100 BURN 1	8.68 - 9.18	9.00		NA NA	NA NA	NA	NA	NA	NA	NA
med pri	olu. Onlis	4 / 4		B.68 - 9.18	9.00	NA	NA NA	NA NA	6.5-9	NA.	NA:	NA:	Yes

CCR - Coal Combustion Residuals.
CCC HLSC - Continuous Criterion Concentration. Human Life-Cycle Safe Concentration.
DW - Drinking Water.

Eco - Ecological.

IDEM - Indiana Department of Environmental Management.

HH - Human Health.

Max. - Maximum Detected Concentration.

mg/L - milligram per liter

MPL - Maximum Permissible Level. NA - Not Available/Not Applicable.

NRWQC - National Recommended Water Quality Criteria.

RL - Reporting Limit. RSL - Risk Based Screening Level. SL - Screening Level.

SW - Surface Water.

USEPA - United States Environmental Protection Agency.

(a) - The hierarchy for selection among the Human Health Screening Levels for Drinking Water, as shown in Table 7-2, is: 1) IDEM Groundwater Tap Residential.

(b) - The hierarchy for selection among the Human Health Screening Levels for Surface Water - Consumption of Organism Only, as shown in Table 7-2, is:
1) IDEM CCC HLSC - Consumption of Organism Only (proposed).

2) IDEM CCC HLSC - Consumption of Organism Only (current)

3) USEPA NRWQC - Consumption of Organism Only (corrent).

(c) - The hierarchy for the selection of ecological screening levels, as shown in Table 7-3, is:

1) IDEM Aquatic Life Criterion (proposed).

2) IDEM Aquatic Life Criterion (current).

3) USEPA NRWQC, Aquatic Life Criteria - Freshwater.

(d) - Chromium screened as both Total Chromium and Hexavalent Chromium to be conservative.

- Concentration is below screening level Concentration is above screening level. - Reporting limit is above screening level.

TABLE 10 SUMMARY OF LEACHATE ANALYTICAL RESULTS WITH COMPARISON TO DRINKING WATER AND SURFACE WATER SCREENING LEVELS -WWTP HEADWORKS - 18 HOUR CCR BENEFICIAL USE ASSESSMENT AES/IPL PETERSBURG PETERSBURG, INDIANA

Constituent	Units	Frequency of Detection	Range of Reporting Limits for Non- Detects	Range of Detected Concentrations	Average of All Samples	Selected HH DW SL (a) (mg/L)	Selected HH SW SL - Consumption of Organism Only (b) (mg/L)	Selected Eco SW SL - Acute (c) (mg/L)	Selected Eco SW SL - Chronic (c) (mg/L)	Max. or RL Exceeds Selected HH DW SL?	Max. or RL Exceeds Selected HH SW SL - Consumption of Organism Only?	Max. or RL Exceeds Selected Eco SW SL - Acute?	Max. or RL Exceed Selected Eco SW SL - Chronic?
Inorganic Compounds	ff tage T			THE PARTY OF THE P	Traction of		The second of	I minute a company of the last					
Aluminum	mg/L	1 / 1		0.62 - 0.62	0.62	20	NA.	NA NA	NA	No	NA	NA.	NA
Antimony	mg/L	0 / 1	800.0 : 800.0		0.004	0,006	0.64	NA NA	NA	RL	No	NA NA	NA NA
Arsenic	mg/L	0 / 1	0.01 : 0.01	That that	0.01	0.01	0.000175	0.34	0.15	No	RL	No.	No
Barium	mg/L	1/1	17 4 1	0.029 - 0.029	0.029	2	NA NA	NA	NA	No	NA	NA.	NA
Boron	mg/L	1 / 1	1 T. A. S.	17.5 - 17.5	17.5	4	NA	NA.	NA	Yes	NA NA	NA NA	NA NA
Cadmium	mg/L	0 / 1	0.002 : 0.002	1 1000 0 1000	0.001	0.005	NA.	0.002	0.001	No	NA NA		
Chromium	mg/L	0 / 1	0.01 : 0.01	Y	0.01	0.1	NA	NA	NA	No	NA NA	RL NA	RL
Chromium (d)	mg/L	0 / 1	0.01 : 0.01	12.1	0.01	0.00035	NA	0.02	0.01	RL		7 40.4	NA
Cobalt	mg/L	0 / 1	0.01 : 0.01	III as the H	0.01	0.006	NA.	NA NA	NA NA		NA	No	No
Copper	mg/L	0 / 1	0.01 : 0.01		0.01	1.3	NA NA	0.01	0.01	RL	NA	NA	NA
Iron	mg/L	0 / 1	0.1 : 0.1		0.1	14	NA	NA NA	0.01	No	NA	No	RL
Lead	mg/L	0 / 1	0.01 : 0.01		0.01	0.015	NA NA	0.10	0.01	No	NA	NA	No
Magnesium	mg/L	1/1	0.01	124 - 124	124	NA.	NA NA		0.01	No	NA	No	RL
Manganese	mg/L	1 / 1		0.5 - 0.5	0.5	0.43	0.1	NA.	NA	NA.	NA	NA	NA
Mercury	mg/L	0 / 1	0.002 : 0.002	0,5 - 0,5	0.001	0.002		NA DOOR	NA	Yes	Yes	NA	NA
Molybdenum	mg/L	1 / 1	0,002 , 0,002	0.016 - 0.016	0.016		0.00015	0,001	0.001	No	RL	RL	RL
Nickel	mg/L	0 / 1	0.01 : 0.01	0.010 - 0.010		0.1	NA	NA NA	NA	No	NA	NA	NA
Potassium	mg/L	1/1	0.01 , 0.01	2.9 - 2.9	0.01	0.39	4.6	0.47	0.05	No	No	No	No
Selenium	mg/L	1/1	13.4		2.9	NA	NA	NA	NA	NA.	NA	NA	NA
Silver		0 / 1	0.04 0.04	0.061 - 0.061	0.061	0.05	4.2	NA	0.003	Yes	No	NA	Yes
Sodium	mg/L	1/1	0.01 : 0.01	0.42 0.221	0.01	0.094	NA	0,003	NA	No	NA	RL	NA
Thallium	mg/L	0 / 1	201 201	27.9 - 27.9	27.9	NA	NA	NA	NA	NA.	NA	NA.	NA
Vanadium	mg/L		0.01 : 0.01		0.01	0.002	0.048	NA NA	NA	RL	No	NA NA	NA
	mg/L	0 / 1	0.01 : 0.01		0.01	0.086	NA	NA NA	NA	No	NA.	NA.	NA
Zinc	mg/L	0 / 1	0.02 : 0.02		0.01	6	26	0.12	0.12	No	No	No	No
Other	1	1 200 200	100 - 100				1 1 1 2 2 2 2						
Acidity, Total	mg/L	0 / 1	10 : 10	L. Salada Grant	5	NA	NA	NA	NA	NA NA	NA.	NA NA	NA
Alkalinity, Total as CaCO3	mg/L	1 / 1		21.3 - 21.3	21.3	NA	NA.	NA	NA	NA.	NA	NA.	NA
Chloride	mg/L	1/1		89 - 89	89	250	NA.	860	230	No	NA	No	No
Fluoride	mg/L	1 / 1		7.8 - 7.8	7.8	0.8	NA.	NA	NA	Yes	NA	NA.	NA
pH at 25 Degrees C	Std. Units	1 / 1		8.2 - 8.2	8.2	NA	NA.	NA	6.5-9	NA	NA	NA	No
Sulfate	mg/L	1 / 1		1040 - 1040	1040	250	NA	NA	NA	Yes	NA	NA NA	NA.
Sulfide	mg/L	0 / 1	0.1 : 0.1		0.05	NA	NA.	NA	NA	NA	NA	NA NA	NA
Total Dissolved Solids	mg/L	1/1		2940 - 2940	2940	500	NA	NA	NA	Yes	NA NA	NA NA	NA
Fotal Organic Carbon	mg/L	0 / 1	1 : 1		1	NA	NA	NA	NA	NA	NA	NA NA	NA NA
Final pH	Std. Units	1 / 1		8.04 - 8.04	8,04	NA	NA	NA	6.5-9	NA NA	NA.	NA NA	No.

CCC HLSC - Continuous Criterion Concentration. Human Life-Cycle Safe Concentration.

DW - Drinking Water.

Eco - Ecological.

IDEM - Indiana Department of Environmental Management.

HH - Human Health.

Max. - Maximum Detected Concentration. mg/L - milligram per liter.

MPL - Maximum Permissible Level. NA - Not Available/Not Applicable.

NRWQC - National Recommended Water Quality Criteria.

RL - Reporting Limit.

RSL - Risk Based Screening Level.

SL - Screening Level. SW - Surface Water.

USEPA - United States Environmental Protection Agency. WWT FGD - Wastewater Treatment Flue Gas Desulfurization.

(a) - The hierarchy for selection among the Human Health Screening Levels for Drinking Water, as shown in Table 7-2, is:

IDEM Groundwater Tap Residential.
 IDEM MPL.

2) IDEM MPL.
3) USEPA RSL - Tap Water.

(b) - The hierarchy for selection among the Human Health Screening Levels for Surface Water - Consumption of Organism Only, as shown in Table 7-2, is:
1) IDEM CCC HLSC - Consumption of Organism Only (proposed).
2) IDEM CCC HLSC - Consumption of Organism Only (current).
3) USEPA NRWQC - Consumption of Organism Only.

3) USEPA NRWOGE - Consumption of Organism Only.

(c) - The hierarchy for the selection of ecological screening levels, as shown in Table 7-3, is:

1) IDEM Aquatic Life Criterion (proposed).

2) IDEM Aquatic Life Criterion (current).

3) USEPA NRWQC. Aquatic Life Criteria - Freshwater.

(d) - Chromium screened as both Total Chromium and Hexavalent Chromium to be conservative.

- Concentration is below screening level. - Concentration is above screening level. - Reporting limit is above screening level.

TABLE 11 SUMMARY OF LEACHATE ANALYTICAL RESULTS WITH COMPARISON TO DRINKING WATER AND SURFACE WATER SCREENING LEVELS -WWTP HEADWORKS - 30 DAY CCR BENEFICIAL USE ASSESSMENT AES/IPL PETERSBURG PETERSBURG, INDIANA

Constituent	Units	Frequency of Detection	Range of Reporting Limits for Non- Detects	Range of Detected Concentrations	Average of All Samples	Selected HH DW SL (a) (mg/L)	Selected HH SW SL - Consumption of Organism Only (b) (mg/L)	Selected Eco SW SL - Acute (c) (mg/L)	Selected Eco SW SL - Chronic (c) (mg/L)	Max. or RL Exceeds Selected HH DW SL?	Max. or RL Exceeds Selected HH SW SL - Consumption of Organism Only?	Max. or RL Exceeds Selected Eco SW SL - Acute?	Max. or RL Exceeds Selected Eco SW SL - Chronic?
Inorganic Compounds	1 1 7 7 7 1	1.75 - 77			H F & T. 944								
Aluminum	mg/L	0 / 1	0.2 : 0.2		0.1	20	NA NA	NA	NA.	No	NA	NA.	NA
Antimony	mg/L	0 / 1	0.008 : 0.008		0.004	0.006	0.64	NA	NA.	RL	No.	NA NA	NA NA
Arsenic	mg/L	0 / 1	0.01 : 0.01	102 421	0.01	0.01	0.000175	0.34	0.15	No	RL	No	No
Barium	mg/L	1/1		0.024 - 0.024	0.024	2	NA NA	NA	NA	No	NA	NA NA	NA NA
Boron	mg/L	1/1	1 2 5 1	13.7 - 13.7	13.7	4	NA	NA.	NA	Yes	NA	NA NA	NA NA
Cadmium	mg/L	0 / 1	0.002 : 0.002		0.001	0.005	NA	0.002	0.001	No	NA NA	RL	RL
Chromium	mg/L	0 / 1	0.01 : 0.01	10 10 10 10 1	0.01	0.1	NA	NA	NA	No	NA NA	NA NA	NA NA
Chromium (d)	mg/L	0 / 1	0.01 : 0.01		0.01	0.00035	NA.	0.02	0.01	RL	NA NA		
Cobalt	mg/L	0 / 1	0.01 : 0.01		0.01	0.006	NA.	NA NA	NA	RL	NA NA	No NA	No
Copper	mg/L	0 / 1	0.01 : 0.01		0.01	1.3	NA.	0.01	0.01	No			NA
Iron	mg/L	0 / 1	0.1 : 0.1		0.1	14	NA.	NA NA	1	No	NA	No	RL
Lead	mg/L	0 / 1	0.01 : 0.01		0.01	0.015	NA.	0.10	0.01	No	NA NA	NA	No
Magnesium	mg/L	1/1	33.	95.8 - 95.8	95.8	NA	NA.	NA NA	NA	NA NA	NA	No	RL
Manganese	mg/L	0 / 1	0.01 : 0.01	00.0	0.01	0.43	0.1	NA NA			NA	NA	NA
Mercury	mg/L	0 / 1	0.002 : 0.002		0.001	0.002	0.00015	0.001	NA	No	No	NA	NA NA
Molybdenum	mg/L	1/1	0.002	0.013 - 0.013	0.013	0.002	NA NA	NA NA	0,001	No	RL	RL	RL
Nickel	mg/L	0 / 1	0.01 : 0.01	0.013 - 0.013	0.013	0.39	4.6		NA	No	NA	NA	NA
Polassium	mg/L	1/1	0.01 . 0.01	2.4 - 2.4	2.4	NA.	The second secon	0.47	0.05	No	No	No	No
Selenium	mg/L	1/1		0.056 - 0.056	0.056		NA	NA	NA	NA	NA	NA	NA
Silver	mg/L	0 / 1	0.01 : 0.01	0.050 - 0.056	0.036	0.05	4.2	NA	0.003	Yes	No	NA.	Yes
Sodium	mg/L	1/1	0.01 . 0.01	210 - 210		0.094	NA	0,003	NA	No	NA	RL	NA NA
Thallium		0 / 1	0.01 . 0.01	21.6 - 21.6	21.6	NA	NA	NA	NA	NA	NA	NA	NA:
Vanadium	mg/L	0 / 1	0.01 : 0.01		0.01	0.002	0.048	NA	NA	RL	No	NA	NA.
Zinc	mg/L	0 / 1	0.01 ; 0.01		0.01	0.086	NA.	NA	NA	No	NA.	NA	NA.
Other	mg/L		0.02 : 0.02		0.01	6	26	0.12	0.12	No	No	No	No
Acidity, Total	mg/L	1/1		17 - 17	17	NA	NA	NA.	NA	NA	NA	NA	NA
Alkalinity, Total as CaCO3	mg/L	1/1		23.9 - 23.9	23.9	NA	NA.	NA.	NA	NA NA	NA	NA	NA.
Chloride	mg/L	1 / 1		69.9 - 69.9	69.9	250	NA	860	230	No	NA	No	No
Fluoride	mg/L	1 / 1		7.8 - 7.8	7.8	0.8	NA	NA	NA	Yes	NA	NA NA	NA NA
pH at 25 Degrees C	Std. Units	1 / 1	7 40 4	7,5 - 7.5	7.5	NA	NA	NA NA	6.5-9	NA NA	NA.	NA NA	No
Sulfate	mg/L	1 / 1		868 - 868	868	250	NA	NA	NA	Yes	NA NA	NA.	NA NA
Sulfide	mg/L	0 / 1	0.1 : 0.1	The same	0.1	NA	NA.	NA	NA	NA.	NA NA	NA NA	
Total Dissolved Solids	mg/L	1 / 1		2800 - 2800	2800	500	NA	NA NA	NA	Yes	NA NA	NA NA	NA NA
Total Organic Carbon	mg/L	0 / 1	1 1	D. 4. F. 4715	1	NA	NA	NA NA	NA	NA NA	NA NA	2000000	NA NA
Final pH	Std. Units	1 / 1		7.73 - 7.73	7.73	NA	NA NA	NA NA	6.5-9	NA NA	NA NA	NA NA	NA No

CCC HLSC - Continuous Criterion Concentration, Human Life-Cycle Safe Concentration. DW - Drinking Water.

Eco - Ecological.
IDEM - Indiana Department of Environmental Management.

Max. - Maximum Detected Concentration,

mg/L - milligram per liter. MPL - Maximum Permissible Level.

NA - Not Available/Not applicable.

NRWQC - National Recommended Water Quality Criteria

RL - Reporting Limit.

RSL - Risk Based Screening Level. SL - Screening Level.

SW - Surface Water.
USEPA - United States Environmental Protection Agency.
WWT FGD - Wastewater Treatment Flue Gas Desulfurization.

(a) - The hierarchy for selection among the Human Health Screening Levels for Drinking Water, as shown in Table 7-2, is:
1) IDEM Coundwater Tap Residential.

2) IDEM MPL

3) USEPA RSL - Tap Water.

(b) - The hierarchy for selection among the Human Health Screening Levels for Surface Water - Consumption of Organism Only, as shown in Table 7-2, is:

1) IDEM CCC HLSC - Consumption of Organism Only (proposed).

2) IDEM CCC HLSC - Consumption of Organism Only (current).

3) USEPA NRWQC - Consumption of Organism Only currenty.

3) USEPA NRWQC - Consumption of Organism Only.

(c) - The hierarchy for the selection of ecological screening levels, as shown in Table 7-3, is:

1) IDEM Aquatic Life Criterion (proposed).

2) IDEM Aquatic Life Criterion (current).

3) USEPA NRWQC. Aquatic Life Criteria - Freshwater.

(d) - Chromium screened as both Total Chromium and Hexavalent Chromium to be conservative.

- Concentration is below screening value. Concentration is above screening level. Reporting limit is above screening value.

# **APPENDIX F-3**

Solids Conversion Leachate Screening Analysis



TABLE 1
SUMMARY OF ESTIMATED LEACHING POTENTIAL WITH COMPARISON TO DRINKING WATER AND SURFACE WATER SCREENING LEVELS BOTTOM ASH
CCR BENEFICIAL USE ASSESSMENT
AES/IPL PETERSBURG
PETERSBURG, INDIANA

Constituent ic Compounds in		Solids Data	ta	Estimated Pote	Potential		Selected Screening Levels	ening Levels			Screening	aning	
Compounds	Ma Re	Maximum Reporting Limit	Maximum Detected	Units	Max. or RL - Leaching Potential Concentration (a)	Selected HH DW SL (b)	Selected HH SW SL - Consumption of Organism Only (c)	Selected Eco SW SL - Acute (d)	Selected Eco SW SL - Chronic (d)	Max. or RL Exceeds Selected HH DW SL?	Max. or RL Exceeds Selected HH SW SL - Consumption of Organism Only?	Max. or RL Exceeds Selected Eco SW SL - Acute?	Max. or RL Exceeds Selected Eco SW SL Chronic?
	100	Ē					i	i h	(1,6)				
·	mg/kg		5230	mg/L	261.5	20	NA.	NA.	NA	Yes	NA	NA	NA
	mg/kg	50		mg/L	0.05	9000	0.64	AN Y	NA	R	No	NA	NA
Arsenic	mg/kg		111	mg/L	0.55	0.01	0.000175	0.34	0.15	Yes	Yes	Yes	Yes
	mg/kg	ľ	81.2	mg/L	4 06	7 4	Y X	Y Y	A S	ő S	Y S	Y S	AN
mn		0.47	4	ma/L	0.024	0 005	Y A	0000	0000	S in	NA NA	NA	NA I
			11	mg/L	0.55	0.1	NA	NA	NA	Yes	AN	NA	AN
nm (e)	ву/бш		11	mg/L	0.55	0.00035	NA	0.02	0.01	Yes	Y.	Yes	Yes
	тд/кд		2.5	mg/L	0.13	900'0	NA NA	NA	AN	Yes	NA	NA	AN
Jec	mg/kg		16.5	mg/L	0.825	1,3	NA	0.01	0.01	Na	NA	Yes	Yes
lron mg	mg/kg		23600	T/6m	1180	14	NA.	NA A		Yes	NA	NA	Yes
	mg/kg		6.7	mg/L	61.0	510.0	Y S	0,10	0.01	Yes	NA	Yes	Yes
	mg/kg		30.0	mg/L	1 06	NA C	d t	X X	Z Z	NA NA	NA	V Z	Y Z
		0.02	0.05	mal	0.003	0,002	0.00015	0,001	0.001	Yes	Yes	Yes	Vec
lenum	mg/kg		3,9	mg/L	0.20	0.1	NA	AN AN	AN	Yes	NA	NA	NA NA
	mg/kg		19.3	mg/L	0.965	0,39	4.6	0.47	0.05	Yes	No	Yes	Yes
	_	í	712	mg/L	35.6	NA	NA	AN AN	NA	NA	AN	AN	NA
E		0.94	2.8	mg/L	0.14	0.05	4.2	Y'A	0.003	Yes	No	NA	Yes
Silver		0.47	010	mg/L	0.024	0.094	Y.	0.003	AN:	No	VA.	N.	Y.
	mg/kg		2/8	mg/L	2500	AN	NA C	Y S	Y :	NA.	NA	AN:	AN.
	mg/kg		23.2	mg/L	1.16	0.086	NA NA	( e	N AN	Yes	Yes	N N	Z Z
	тд/кд		19.2	mg/L	96.0	9	26	0.12	0.12	No	ON	Yes	Yes
Acidity, Total mg/	mg/kg	100		may	5	NA	AN A	AN	AN	AN	AN	MA	MA
	mg/kg	100		mg/L	9	250	NA.	860	230	No	NA.	No	No
	mg/kg	10	27.7	mg/L	1,39	0.8	A'N	NA	NA A	Yes	A'N	NA	NA
	%			%	N. N.	AN	NA NA	AN	NA	NA	NA	NA NA	NA
5 Degrees C	Std. Units			Std. Units	AN	AN	Ą	AN	6.5-9	NA	NA	AN	AN
	mg/kg		18200	mg/L	910	250	NA	A'N	NA NA	Yes	NA	NA	AN AN
	mg/kg	20	9220	mg/L	461	Y.	AN:	Y.	V.	NA	NA	V.	A A
Mean Total Organic Carbon mo/km	mg/kg		80500	mg/L	A V	V S	A N	d «	V C	Y S	Z :	ď.	Y.

	esiduals.	
	Combustion R	
	· Coal	
Notes:	CCR	000

CCC - Continuous Criterion Concentration...
DW - Drinking Water.
Eco - Ecological.
IDEM - Indiana Department of Environmental Man HH - Human Health.
HLSC - Human Life-Cycle Safe Concentration.
Max - Maximum Detected Concentration.
mg/L - milligram per liter.

- Concentration is below screening level.

Concentration is above screening level.

MPL - Maximum Permissible Level,
NA - Not Available.Not Applicable.
NRWQC - National Recommended Water
RL - Reporting Limit.
RSL - Risk Based Screening Level,
SL - Screening Level.
SW - Surface Water.
USEPA - United States Environmental Pro

(a) - Leaching potential value is estimated as the maximum detected concentration or reporting limit for solids divided by 20.
(b) - The hierarchy for selection among the Human Health Screening Levels for Drinking Water, as shown in Table 7-2, is:

1) IDEM Groundwater Tap Residential.
2) IDEM MPL.
3) USEPA RSL - Tap Water.
(c) - The hierarchy for selection among the Human Health Screening Levels for Surface Water - Consumption of Organism Only (proposed).
1) IDEM CCC HLSC - Consumption of Organism Only (current).
3) USEPA NRWOC - Consumption of Organism Only (current).
(d) - The hierarchy for the selection of coological screening levels, as shown in Table 7-3, is:

DEM Aquatic Life Criterion (proposed).
IDEM Aquatic Life Criterion (proposed).
IDEM Aquatic Life Criterion (current).
DEM Aquatic Life Criterion (current).
USEPA NRWOC. Aquatic Life Criteria - Freshwater.
Chromium screened as both Total Chromium and Hexavalent Chromium to be conservative.

m in Table 7-2, is:

option of Organism Only, as

TABLE 2
SUMMARY OF ESTIMATED LEACHING POTENTIAL WITH COMPARISON TO DRINKING WATER AND SURFACE WATER SCREENING LEVELS FLY ASH
CCR BENEFICIAL USE ASSESSMENT
AES/IPL PETERSBURG
PETERSBURG, INDIANA

		Solids Data	Jata	Estima	Estimated Leaching Potential		Selected Scre	Selected Screening Levels			Screening	ning	
Constituent	Units	Maximum Reporting Limit	Maximum Detected Concentration	Units	Max. or RL - Leaching Potential Concentration (a)	Selected HH DW SL (b)	Selected HH SW SL. Consumption of Organism Only (c) (ma/L)	Selected Eco SW SL - Acute (d)	Selected Eco SW SL - Chronic (d)	Max. or RL Exceeds Selected HH DW SL?	Max. or RL Exceeds Selected HH SW SL - Consumption of Organism Only?	Max. or RL Exceeds Selected Eco SW SL - Acute?	Max. or RL Exceeds Selected Eco SW SL.
norganic Compounds						1	1	1 6	(1.6)				
Aluminum	mg/kg		8330	mg/L	416.5	20	NA	NA	NA	Yes	AN	NA	NA
Antimony	mg/kg		1.3	mg/L	0.065	0.006	0.64	AN N	NA.	Yes	No	A N	NA
Arsenic	mg/kg		121	mg/L	6.05	0.01	0.000175	0.34	0.15	Yes	Yes	Yes	Yes
Barium	mg/kg		929	mg/L	2.80	2	AN	NA NA	NA	Yes	NA	NA	NA
Boron	mg/kg		414	mg/L	20.7	4	AN	¥	AN A	Yes	N.A.	AN	AN
Cadmium	mg/kg		1.6	mg/L	80.0	0.005	AN	0.002	0.001	Yes	NA	Yes	Yes
Chromium	mg/kg		39.9	mg/L	2.00	0.1	A'A	NA	NA	Yes	NA	A'N	AN
Chromium (e)	mg/kg		39.9	₩ mg/L	2.00	0.00035	NA.	0.02	0.01	Yes	NA	Yes	Yes
Cobalt	mg/kg		10.4	mg/L	0.520	900'0	NA	AN	NA	Yes	AN	AA	AN
Copper	шд/ка		33.8	mg/L	1.69	1.3	A'N	0.01	0.01	Yes	AN	Yes	Yes
ron	mg/kg		45600	mg/L	2280	14	NA	NA NA	1	Yes	NA	NA	Yes
Lead	mg/kg		31.4	mg/L	1.57	0.015	YZ.	0.10	0.01	Yes	AN	Yes	Yes
Magnesium	mg/kg		846	mg/L	42.3	A'N	ZA	AN	NA	NA	NA	AN	AN
Manganese	mg/kg		55.9	mg/L	2.80	0.43	0.1	NA	NA	Yes	Yes	NA	NA
wercury	mg/kg		9.0	mg/L	0.04	0.002	0.00015	0.001	0.001	Yes	Yes	Yes	Yes
Molybaenum	mg/kg		30.4	mg/L	1.52	0.1	AN.	Y Y	NA	Yes	NA	AN	NA
Nickel	mg/kg		147	mg/L	2.4	0.39	4.6	0.47	0.05	Yes	No	Yes	Yes
Total Salution	mg/kg		040	mg/L	11	Y S	Y.	Y.	NA.	V.	NA	Y.Y	AN
Selemon	mg/kg		0.51	mg/L	0.980	0.05	4.2	AN	0.003	Yes	No	NA	Yes
in the second	Bushin	0.0	20000	mg/L	0.025	0.094	¥:	0.003	NA	DN.	NA	RL	AN.
Photherm	Bydu		70007	mg/L	1025	NA COO	A S	NA.	Y.	Y.	NA	Y.	YY.
military)	Bybu		0.4	mg/L	97.0	0.002	0,048	Y.	NA:	Yes	Yes	N.	YZ.
Zinc	ByBu		3.47	mg/L	2.7.0	0.080	NA NA	NA C	NA	Yes	NA.	NA.	NA.
Other	Rußin		2	T/BIII	07.0	0	67	21.0	0.12	NO	No	Yes	Yes
Acidity, Total	mg/kg	100		mg/L	5	AN	NA	AN	AN	AN	NA	NA	AN
Chloride	mg/kg		5070	mg/L	253.5	250	AN	860	230	Yes	NA	No	Yes
Fluoride	mg/kg		38.1	mg/L	1.91	0.8	NA.	NA	AN	Yes	NA	NA	NA
Percent Moisture	%		5.1	%	NA	Y Z	NA AN	NA	NA	NA	NA	NA	AN
pH at 25 Degrees C	Std. Units		10.3	Std. Units	AN	Y.	NA	NA	6.5-9	NA	NA	AN	A'N
Sulfale	mg/kg		28300	mg/L	1415	250	NA NA	NA	NA	Yes	NA	N.A.	AN
Sulfide	mg/kg	20		mg/L	2.5	NA	AN	AA	AN	NA	NA	NA	AN
Total Organic Carbon	mg/kg		28200	mg/L	AN	Y X	NA	NA	NA	NA	NA	NA	AN
Mean Total Organic Carbon	mg/kg		28100	√gm	AN	NA	ΑZ	AZ.	NA	AN	AN	AN	AN

Notes:
CCR - Coal Combustion Residuals.
CCC - Continuous Criterion Concentration,
DW - Drinking Water.
Eco - Ecological.
IDEM - Indiana Department of Environmental
HH - Human Health.
HLSC - Human Life-Cycle Safe Concentration
Max - Maximum Detected Concentration.
mg/L - milligram per lifer.

- Concentration is above screening level.

tration is below screening level.

- Reporting limit is above screening level.

(a) - Leaching potential value is estimated as the maximum detected concentration or reporting limit for solids divided by 20.
(b) - The hierarchy for selection among the Human Health Screening Levels for Drinking Water, as shown in Table 7-2, is:

1) DEM Groundwater Tap Residential.
2) IDEM MPL.
3) USEPA RSL - Tap Water.
(c) - The hierarchy for selection among the Human Health Screening Levels for Surface Water - Consumption of Organism Only (proposed).
2) IDEM CCC HLSC - Consumption of Organism Only (current).
3) USEPA NRWQC - Consumption of Organism Only (current).
(d) - The hierarchy for the selection of ecological screening levels, as shown in Table 7-3, is:

1) IDEM Aquatic Life Criterion (proposed).
2) IDEM Aquatic Life Criterion (proposed).
2) IDEM Aquatic Life Criterion (proposed).
3) USEPA NRWQC. Aquatic Life Criteria - Freshwater.
(e) - Chromium screened as both Total Chromium and Hexavalent Chromium to be conservative.

mption of Organism Only, as shown in Table 7-2, is:

TABLE 3
SUMMARY OF ESTIMATED LEACHING POTENTIAL WITH COMPARISON TO DRINKING WATER AND SURFACE WATER SCREENING LEVELS GYPSUM
CCR BENEFICIAL USE ASSESSMENT
AES/IPL PETERSBURG
PETERSBURG, INDIANA

Max. or RL			Solids Data	ata	Estima	Estimated Leaching Potential		Selected Screening Levels	ening Levels			Screening	ning	
March   Marc	Constituent	Units	Maximum Reporting Limit	Maximum Detected Concentration	Units	Max. or RL - Leaching Potential Concentration (a)	Selected HH DW SL (b)	Selected HH SW SL - Consumption of Organism Only (c)	Selected Eco SW SL - Acute (d)	Selected Eco SW SL - Chronic (d)	Max. or RL Exceeds Selected HH DW SL?	Max. or RL Exceeds Selected HH SW SL - Consumption of Organism Only?	Max. or RL Exceeds Selected Eco SW SL - Acute?	Max. or RL Exceeds Selected Eco SW SL
Marcolous   Marc	organic Compounds			i.			100	ì	1	T in				
Marie   Mari	muumm	mg/kg	0	581	mg/L	29.1	20	NA	NA	AN	Yes	NA	NA	YZ.
migked         3.1         might         0.16         0.01         0.000075         0.34         0.15         Vest         Vest           migked         0.48         3.56         might         0.16         0.01         0.000075         0.03         0.01         Vest         Vest           umr         migked         0.48         3.56         might         0.17         0.0003         NA         NA         NA         NA         NA           umr         migked         0.99         2.5         might         0.17         0.0003         NA	numony	mg/kg	6.0		mg/L	0.05	900.0	0.64	AN A	NA	R	No	NA	NA
mm         mg/s         55         mg/L         205         NA         NA <t< td=""><td>rsenic</td><td>mg/kg</td><td></td><td>3,1</td><td>mg/L</td><td>0.16</td><td>0.01</td><td>0.000175</td><td>0.34</td><td>0.15</td><td>Yes</td><td>Yes</td><td>No</td><td>Yes</td></t<>	rsenic	mg/kg		3,1	mg/L	0.16	0.01	0.000175	0.34	0.15	Yes	Yes	No	Yes
mm         mm         mm         mm         mm         NA         NA         NA         NA         NA           mm         mm         mm         mm         mm         mm         mm         mm         mm         NA         NA </td <td>arium</td> <td>mg/kg</td> <td></td> <td>15</td> <td>Wg/L</td> <td>0.75</td> <td>2</td> <td>NA</td> <td>NA</td> <td>AN</td> <td>Na</td> <td>NA</td> <td>NA</td> <td>NA</td>	arium	mg/kg		15	Wg/L	0.75	2	NA	NA	AN	Na	NA	NA	NA
Maritimary   Mar	oron	mg/kg		59,65	mg/L	2.98	4	NA NA	AN	NA	No	NA	NA	NA
umm         mg/kg         3.4         mg/L         0.17         0.01         NA	admium	mg/kg	0.48		mg/L	0.024	0.005	NA	0.002	0.001	RL	NA	RI	R
Um (e)         mgKg         0.9         3.4         mgL         0.17         0.000035         NA         NA <td>hromium</td> <td>mg/kg</td> <td></td> <td>3.4</td> <td>mg/L</td> <td>0,17</td> <td>0.1</td> <td>NA</td> <td>NA</td> <td>NA</td> <td>Yes</td> <td>NA</td> <td>NA</td> <td>NA</td>	hromium	mg/kg		3.4	mg/L	0,17	0.1	NA	NA	NA	Yes	NA	NA	NA
Marie   Mari	hromium (e)	mg/kg		3.4	√B/W	0.17	0.00035	NA	0.02	0.01	Yes	NA	Yes	Yes
Maritime	obalt	mg/kg	6.0		mg/L	0.045	900.0	NA	NA.	NA	RL	NA	NA	AN
mg/kg         0.96         mg/L         0.048         0.015         NA	opper	mg/kg		2.5	mg/L	0.13	1.3	NA	10.0	0.01	No	NA NA	Yes	Yes
mg/kg   0.96   mg/L   127		mg/kg	1	1060	mg/L	53	14	NA	NA		Yes	NA	AN	Yes
Market   M	ad	mg/kg	96'0		mg/L	0.048	0.015	NA	0.10	10.0	RI	NA	ON	RL
Market	agnesium	mg/kg	١	2540	mg/L	127	NA	NA NA	NA	NA	NA	AN	NA	NA
Market	anganese	mg/kg		25.9	Wg/L	1.30	0.43	0.1	AA	NA	Yes	Yes	NA	NA
Maritimate   Mar	srcury	mg/kg		0.053	mg/L	0.0027	0.002	0.00015	0.001	0,001	Yes	Yes	Yes	Yes
Markey   1.8   mg/L   0.090   0.39   4.6   0.47   0.05   No   No   No   No   No   No   No   N	olybdenum	mg/kg	0.96		mg/L	0,048	1.0	NA	NA	NA	- No	NA	AN	NA
Make a carbon   Make a carbo	ckei	mg/kg	1	1.8	mg/L	0.090	0.39	4,6	0.47	0.05	No	No	ON.	Yes
mg/kg   0.48   2.5 mg/L   0.054   0.054   0.053   0.05   0.054   0.003   0.054   0.003   0.054   0.004   0.0	tassium	mg/kg		195	mg/L	9.75	AN	NA NA	Y.	NA	NA	NA	NA	NA
mg/kg         0.48         mg/L         0.024         0.094         NA         0.003         NA	lenum	mg/kg	000	2.5	mg/L	0,13	0.05	4.2	NA	0.003	Yes	No	NA	Yes
mg/kg   0.9   mg/L   0.045   0.048   NA   NA   NA   NA   NA   NA   NA   N	ver	mg/kg	0.48		mg/L	0.024	0.094	NA.	0.003	AA	o <sub>N</sub>	NA	굺	NA
mg/kg   0.9   2.8   mg/L   0.045   0.002   0.048   NA   NA   NA   NA   NA   NA   NA   N	dium	шд/ка	46.6	196	mg/L	9.8	AN	NA	NA	AA	NA	NA	NA	NA
mg/kg   100	allium	mg/kg	6.0		mg/L	0,045	0.002	0.048	NA	NA	R	So.	AN	AN
Total mg/kg 100 mg/L 5 NA	nadium	mg/kg		2.8	mg/L	0.14	0.086	NA	NA	A'A	Yes	NA	NA	AZ.
Total mg/kg 100	2	mg/kg	1	10.8	mg/L	0.540	9	26	0.12	0.12	Na	No	Yes	Yes
Detail   mg/kg   997   213   mg/L   55   NA   NA   NA   NA   NA   NA   NA	ner Tribit				-									
Maisture	adity, Lotal	пд/ка	001	1000	mg/L	2	NA NA	NA	AN	NA NA	Y X	NA	NA	NA
Moisture % % 23.4 % NA	allonde	ша/ка	7.66	213	mg/L	10.7	250	NA	860	230	No	NA.	No	No.
Mosture % No	Jorde	mg/kg	1	6'92	mg/L	3.85	0.8	NA	A'N	NA	Yes	NA	NA	Y.
Std. Units	ercent Moisture	%		23.4	%	A N	NA NA	NA	NA	NA NA	NA	NA	NA	AN
терме 50 те	1 at 25 Degrees C	Std. Units		8.3	Std. Units	NA NA	Y.	NA.	AN	6.5-9	NA	NA	NA	NA NA
mg/kg 575 764 mg/L NA	ulfate	mg/kg		19100	mg/L	955	250	AN	AN	NA	Yes	NA	NA	NA
mg/kg 6/55 7/64 mg/L NA NA NA NA NA NA NA	illide	шд/кд	20		mg/L	2.5	Y.	Y Y	NA	NA	NA	AZ	NA	AN
	otal Organic Carbon	тд/кд	675	764	mg/L	A :	Y.	Y.	NA.	AN	A.	Z Z	NA	AN

Notes:
CCR - Coal Combustion Residuals,
CCC - Continuous Criterion Concentration,
DW - Drinking Water.
Eco - Ecological.
IDEM - Indiana Department of Environmental Management.
HH - Human Health.
HLSC - Human Life-Cycle Safe Concentration
Max - Maximum Detected Concentration.
mg/L - milligram per liter.

(a) - Leaching potential value is estimated as the maximum detected concentration or reporting limit for solids divided by 20.
(b) - The hierarchy for selection among the Human Health Screening Levels for Drinking Water, as shown in Table 7-2, is:

1) IDEM Groundwater Tap Residential.
IDEM Groundwater Tap Residential.
IDEM Groundwater Tap Water.
IDEM MPL.
IDEM GROUNDWAPL.
IDEM CCC HLSC - Consumption of Organism Only (current).
IDEM CCC HLSC - Consumption of Organism Only (current).
IDEM Aquatic Life Criterion (proposed).
IDEM Aquatic Life Criterion (proposed).
IDEM Aquatic Life Criterion (current).
IDEM Aquatic Life Criterion (current).
USEPA NRWQC. Aquatic Life Criterion (current).
USEPA NRWQC. Aquatic Life Criterion (current).
USEPA NRWQC. Aquatic Life Criterion (current).

Chromium screened as both Total Chromium and Hexavalent Chromium to be conservative.

ption of Organism Only, as shown in Table 7-2, is:

- Concentration is above screening level. - Concentration is below screening level,